

**A Comparison of Social Information Processing in Children  
with and without Reactive Attachment Disorder and the  
Association with Behavioural Difficulties.**

AND CLINICAL RESEARCH PORTFOLIO

Part 1

(Part 2 bound separately)

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**July 2011**

*Submitted in partial fulfilment of the requirements for the degree of Doctorate in  
Clinical Psychology (D. Clin. Psy)*

## Faculty of Medicine Graduate School

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## CHAPTER 1: SYSTEMATIC LITERATURE REVIEW

### **Social information processing patterns in maltreated children and their impact on psychosocial outcomes- a systematic review**

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## **Abstract**

This paper reviews the social information processing (SIP) patterns and the association of these patterns to psychosocial functioning in children aged 4-12 with a history of physical, emotional or sexual abuse, or neglect. A systematic review, consisting of an electronic database search using keywords and a hand search of selected journals, identified 12 articles published between 1990 and 2009 that were deemed to meet pre-defined eligibility criteria. The majority of studies found impaired SIP in maltreated children and SIP deficits were associated with poorer psychosocial outcomes, particularly externalising difficulties. Characteristics of the reviewed samples and methodological limitations limit the conclusions that can be drawn from the existing research, particularly the aspects of SIP and psychosocial outcomes that are most impaired by maltreatment and the impact of unique maltreatment subtypes on SIP operations. Implications of the results are discussed and specific suggestions for future research are made.

## **Keywords**

Social information processing, maltreated children, psychosocial outcome, systematic review

## **Introduction**

The study of SIP operations in maltreated children, with a history of physical, sexual, or emotional maltreatment, or neglect, is a developing research area and the absence of any relevant systematic reviews means that the methodological quality of the studies is unknown. This section briefly outlines the SIP paradigm and the association between SIP and child maltreatment before proceeding to discuss the methodological limitations in maltreatment research that provide the context for the review questions of the target literature.

### **Child maltreatment and social information processing**

The negative and pervasive effects of child maltreatment on a variety of psychosocial outcomes are well documented (Bolger, Paterson & Kupersmidt, 1998; Dodge, Bates & Pettit, 1990; Dodge, Bates, Pettit, & Valente, 1995; Tiesl & Cicchetti, 2007). The influential and widely researched model of social information processing (Crick & Dodge, 1994), drawing on attachment theory (Bowlby, 1973), posits that internal working models develop from the quality of a child's attachment with their primary caregiver and acts as a perceptual filter through which social information will be processed and responded to. Specifically, Crick and Dodge (1994) emphasise several SIP steps that precede the enactment of a social behaviour; (1) encoding of situational cues; (2) mental representation and interpretation of those cues; (3) accessing potential responses from memory; (4) and evaluation of these responses. There is evidence that the ability to competently process social information is impaired in maltreated children (e.g., Dodge et al., 1995) and this is associated with maladaptive outcomes (e.g., Dodge et al., 1995; Price & Landsverk, 1999), while the ability to



competently process social information has been associated with more positive outcomes for maltreated children (e.g., Ward & Haskett, 2008).

### Issues in the literature

It is important to consider how maltreatment is assessed and defined within the literature when interpreting the results of studies investigating SIP in maltreated children. Conway and Hansen (1989) highlighted the lack of precision in assessing maltreatment history, for example, the inconsistent use of a standard maltreatment classification system. A lack of specificity on maltreatment type or the pooling of maltreatment sub-types within the research has also been identified (Trickett & McBride-Chang, 1995). In relation to the lack of specificity of maltreatment type, cases of pure maltreatment subtypes appear to be less common in the literature than cases of maltreatment with co-morbid subtypes (Cicchetti & Barnett, 1991), while the majority of studies with a pure maltreatment type tend to focus on physical abuse (e.g., Dodge et al., 1990; Haskett, 1990). It is therefore essential to consider the maltreatment type and method of assessment to permit valid comparisons to be drawn across different studies as SIP performance may be dependent on the type of maltreatment experienced.

It is also necessary to take into account how psychosocial outcomes are assessed when interpreting the maltreatment literature as the method used may introduce bias. For example, Conway and Hansen (1989) identified as problematic the reliance on parent report measures in assessing psychosocial outcomes in maltreated children as they may have unrealistic expectations about their child's behaviour. The use of teachers to complete measures of child adjustment is also questionable as their awareness of the child's maltreatment history and past behavioural difficulties may

prejudice their current view of difficulties (Conway & Hansen, 1989). Multi-informant assessment would overcome some of these difficulties but does not appear to be standard research practice in the literature. More generally, the over use of instruments with poor psychometric properties (Trickett & McBride-Chang, 1995) reduces the credibility of reported findings.

There are several other factors that need to be considered when interpreting the results of studies investigating SIP in maltreated children. For example, the age and developmental stage of the child may affect SIP as maturation may lead to increased cognitive capabilities that are likely to influence SIP performance (Crick & Dodge, 1994). The over-reliance on cross-sectional designs in the child maltreatment literature may lead to study results being confounded with the age or developmental stage of the child (Trickett & McBride-Chang, 1995) and there is therefore a need to consider the design of the study when interpreting the results. Given that SIP processing is assumed to be gender normative in nature with behavioural difficulties associated with interpersonally related cognitive processing for girls and instrumentally related cognitive processing for boys (Crick & Dodge, 1994), it is important to consider whether studies have controlled for the impact of gender on SIP in either the recruitment or statistical analyses stage of the investigation.

Finally, it is important to consider additional confounding variables that may be biasing the literature. It is known that child maltreatment is more common in the context of other risk factors for behavioural difficulties, for example, single parent families (Horowitz & Wolcock, 1981) and familial stress (Pianta, Egeland & Erickson, 1990) and therefore studies should control for social and family factors that may impact on SIP and the association between SIP and psychosocial outcomes.

Maltreated children have been found to have less well developed expressive vocabularies and language skills than non-maltreated peers (Beeghly & Cicchetti, 1994; Coster, Gersten, Beeghly, & Cicchetti, 1994) and one study found the relationship between maltreatment and impaired SIP operations was no longer significant when receptive vocabulary was controlled for (Smith & Walden, 1999). Given that the SIP instruments (e.g., Dodge et al., 1990) were designed for use with the typically developing child and require considerable verbal comprehension both intellectual functioning and receptive language ability could be potential confounders of child SIP differences.

#### Why is it important to do this review?

To the author's knowledge, there have been no systematic reviews investigating SIP operations in maltreated children. Given that the effectiveness of most treatments for maltreated children has been disappointing (National Call for Action, 2004), greater knowledge of SIP operations and their association with psychosocial outcomes in maltreated children could have potential clinical applicability in informing intervention. This review, therefore, seeks to answer the following questions while considering the methodological quality of the reviewed studies:

- What is the relationship between child maltreatment and the stages of SIP?
- What stage of SIP is most impacted on by child maltreatment?
- What is the association of SIP to psychosocial outcomes in maltreated children?

Methodological considerations will include the method used to assess maltreatment and psychosocial outcomes. In addition, the degree to which studies have identified and controlled for possible confounding variables will be explored.

## **Method**

### Selection criteria

Studies were included if (i), they examined SIP patterns or the association between SIP patterns and psychosocial outcomes in maltreated children (ii), maltreatment type was specified, whether that was physical, sexual or emotional abuse or neglect (iii), the children were aged between 4-12 years of age (iv), psychosocial outcomes included the domains of social competence, peer and familial, behavioural and psychological difficulties (v), they were written in English. Studies were excluded if (i), children were under 4 or over 12 years of age (ii), children were diagnosed with a learning disability (iii), the maltreatment type was not specified (iv), qualitative studies (v), conference abstracts (vi), single case studies (vii), non- English language papers (viii), review papers (ix), book chapters (x), unpublished dissertations or (xi), non-peer reviewed publications

### Search strategy

#### *Computerised search*

The following databases were searched for relevant studies for the systematic review on 22<sup>nd</sup> December 2010:

- (i) CINAHL
- (ii) Health Source
- (iii) PsyArticles
- (iv) PsychINFO
- (v) Psychology and Behavioural Sciences
- (vi) MEDLINE

The following key words were used for the computerised search:

MALTREATED CHILD\* or ABUSED CHILD\* or CHILD\* IN FOSTER CARE or ADOPTED CHILD\* or NEGLECTED CHILD\* or PHYSICAL ABUSE IN CHILD\* or SEXUAL ABUSE IN CHILD\* or EMOTIONAL NEGLECT or EMOTIONAL MALTREATMENT or PSYCHOSOCIAL DWARFISM or NON-ORGANIC FAILURE TO THRIVE or REACTIVE ATTACHMENT DISORDER combined with SOCIAL INFORMATION PROCESSING or SOCIAL INFORMATION or ENCODING or CUE UTILISATION\* or HOSTILE INTENT or ATTRIBUTION BIAS or ATTRIBUTION ERROR or RESPONSE ACCESS or RESPONSE GENERATION or RESPONSE DECISION or RESPONSE SELECTION or RESPONSE EVALUATION or BEHAVIOURAL\* ENACTMENT or SOCIAL SELF-EFFICACY or SOCIAL PROBLEM SOLVING

#### *Hand Search*

The abstracts of the following journals were examined to determine whether papers may meet eligibility criteria.

- (i) Child Abuse and Neglect: The International Journal (1977-2010)
- (ii) Child Abuse Review (1992-2010)
- (iii) Journal of Child Sexual Abuse (1992-2010)
- (iv) Child Maltreatment (1996-2010)
- (v) Journal of Clinical Child and Adolescent Psychology (1980-2010)
- (vi) Journal of Clinical Child Psychology and Psychiatry (1996-2010)

### *Reference searching*

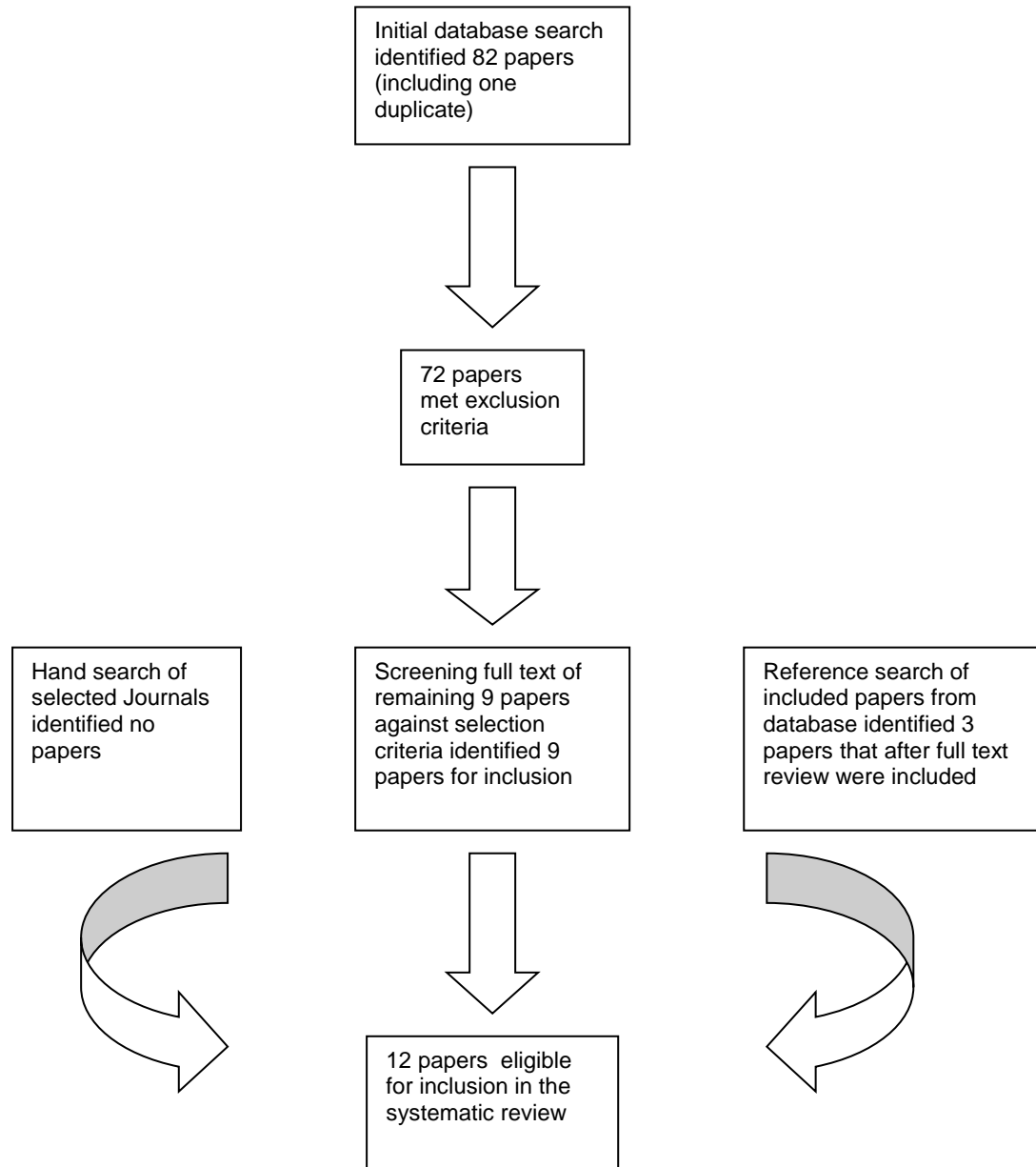
The reference sections of papers that were identified by the computerised database search were inspected to identify potential studies to be included in the review.

### *Identification of studies for inclusion*

From the computerised search, 82 papers were identified. One appeared as both a dissertation (Ward, 2007) and a peer reviewed publication (Ward & Haskett, 2008). Sixty-three papers were excluded as the content was not relevant to the review area. Seven papers were excluded as they were unpublished dissertations (Chaneske, 1991; Dover, 1999; Quamma, 1997; Schweder, 2003; Shackman, 2010; Sperry, 2009; Tolliver, 2004). Two review-relevant papers were excluded as they were non-research papers (Milner, 1998; O'Donohue & Rudman, 1999). Visual inspection of the remaining 9 papers suggested they may satisfy selection criteria (Dodge et al., 1990; Dodge et al., 1995; Haskett, 1990; Keil & Price, 2009; Kim & Cicchetti, 2003; Price & Landsverk, 1998; Smith & Walden, 1999; Tiesl & Cicchetti, 2007; Ward & Haskett, 2008). Full text articles were collected and examined for these and all were deemed to meet eligibility criteria. The hand search of selected journals did not identify any relevant studies. The search of the reference sections of the 9 included studies identified three potential papers for inclusion. After examination of the full text articles, the three papers (Lansford et al., 2006; Price & Glad, 2003; Trickett, 1993) were deemed to satisfy eligibility criteria. The review therefore included a total of 12 papers. The search process is illustrated in Figure 1.

Figure 1

*Search Process for the Systematic Review*



### Ratings of methodological quality

The author developed a measure to assess quality (Appendix 1.2) following consultation with Scottish Intercollegiate Guidelines network (SIGN 50) and the Critical Appraisal Skills Programme (2004) for case control studies. It was not possible to follow these directly as it was predicted that the studies would vary in terms of methodology. Additionally, it was deemed appropriate that studies should incorporate a number of other methodological criteria identified in the maltreatment literature (Conway & Hansen, 1989; Trickett & McBride-Chang, 1995). The quality checklist contained 24 items, covering the areas of methodology, sample, measures and results. Items were scored 2, 1, or 0 (“yes”, “can’t tell/not applicable/partially addressed” or “no”), although several items were rated either ‘yes’ or ‘no’ and scored 2 or 0 accordingly. The total range of scores was therefore 0-48, expressed as a percentage.

It is important to note that the interpretation of scores as reflective of quality was limited as not all factors were equally important and studies could not be rated on all items. However, the proforma permitted a general rating of quality to be determined. Studies were categorised as high (>75%), moderate (60-74%), low (50-59%) or poor (<49%) quality. An independent rater rated 3 of the selected studies with the proforma in order to establish inter-rater reliability for the study quality. Agreement between the two raters was acceptable at 78%. Disagreement was resolved through discussion.



## **Results**

### Overview of the reviewed studies

The author developed a data extraction protocol (Appendix 1.3) that was piloted on 3 randomly selected review studies and refined accordingly. The key characteristics and quality ratings of the reviewed studies are presented in Table 1.

INSERT TABLE 1 HERE

The reviewed studies involved a total of 2059 children comprising of maltreated and non-maltreated comparison children. Three studies (Dodge et al., 1990; 1995; Lansford et al., 2006) drew on the same samples and the figures have only been included once in respect of the summary of demographic information. The total sample was 49.4% male (N=1019) ranging in age from 4-12 years and were all recruited in the USA. Non-minority (white ) comprised 45.7% (N=942) of the sample with the remaining children classified as minority non-white. Children who had experienced maltreatment comprised 45.7% (931) of the overall sample. The 124 children in one study (Price & Landsverk, 1998) were in foster care at the time of assessment residing with either a relative (31%) or a non-relative (69%). The children in the remaining 11 studies were living with at least one of their parents with 53% from single parent families.

### Instruments

The majority of studies assessed SIP operations with instruments developed by Dodge and colleagues (Dodge, 1980; Dodge & Frame, 1982; Dodge, Murphy & Buchsbaum, 1984; Dodge et al., 1990; Dodge et al., 1995). These instruments typically presented

children with ambiguous peer provocation or group entry events, presented verbally, pictorially, or on video, and assessed their understanding, interpretation and manner of responding to these events. Response access was also investigated with the Preschool Interpersonal Problem Solving (PIPS) (Schure & Spivack, 1984) test, the Social Problem Solving Measures (Conduct Problems Prevention Research Group, 1991b) and the Open Middle Test (Gesten, Rains, & Rapkin, 1982). Response evaluation was also assessed with the Children's Self- Efficacy for Peer Interaction Scale (CSPI) (Wheeler & Ladd, 1982). These instruments ask children to generate solutions to verbally and visually presented social problems in relation to peers.

Two studies (Keil & Price, 2009; Price & Glad, 2003) specified that the assessor of SIP operations was trained but provided no further details, while the remaining studies did not specify whether the assessor was trained. Six studies (Haskett, 1990; Keil & Price, 2009; Kim & Cicchetti, 2003; Price & Glad, 2003; Trickett, 1993) were explicit that the assessor of SIP operations is blind to the child maltreatment status, while the remaining studies did not provide this information.

Measures of psychosocial outcomes included the Teacher Report Form of the Child Behaviour Checklist (Achenbach, 1991; Achenbach & Edelbrock, 1986), the Parent Report Form of the Child Behaviour Checklist- Parent Report Form (Achenbach & Edelbrock, 1986). Tiesl and Cichetti (2007) utilised a system of peer nominations (Coie & Dodge, 1983) for measuring child aggression, while Dodge et al (1990) also utilised a peer nomination protocol (Parker & Asher, 1987) and playground observation.

### Calculation of effect sizes

The effect sizes presented in the first two review questions below were calculated by the author using an established formula (Cohen, 1992).

$$d = \frac{M_{group1} - M_{group2}}{SD_{pooled}}$$

The pooled standard deviation was calculated using the formula:

$$\sigma' = \sqrt{\frac{\sigma_A^2 + \sigma_B^2}{2}}$$

Using Cohen's (1992) convention, an effect size of .2 is described as small, 0.5 is medium, while an effect size greater than 0.8 is deemed large.

### What is the relationship between maltreatment and SIP?

Table 2 displays the maltreatment type, SIP stages investigated and key results for each of the relevant reviewed studies that were used to address the first two questions.

INSERT TABLE 2 HERE

The reviewed articles indicate that overall maltreated children displayed less competent SIP compared to non-maltreated peers, with the exception of one study that reported superior SIP operations (response evaluation) for younger maltreated children (Kim & Cicchetti, 2003). However, this study was methodologically limited by failing to control for potential confounding variables, with the exception of gender, and by having poorly defined eligibility criteria. The study also pooled maltreatment subtypes, thereby limiting the generalizability of the study findings to specific

maltreatment subtypes. The three studies that reported large effect sizes ( $d > .8$ ) for the response access component of the SIP model (Haskett, 1990; Smith & Walden, 1999; Trickett, 1993) were methodologically strengthened by matching physically abused and comparison children on age, gender, receptive vocabulary and intellectual functioning (Haskett, 1990), and matching by age and gender (Trickett, 1993) and thereby controlling for the effects of these potential confounders. The sampling strategy used by Smith and Walden (1999) achieved a maltreatment and comparison group broadly similar in age, gender and ethnicity and the study controlled for child receptive vocabulary in analyses. Thus, despite the relatively small sample sizes in these studies ( $N < 60$ ), considerable confidence can be placed in these findings.

The magnitude of the difference in the remaining studies between maltreatment and non-maltreatment groups in SIP operations was generally small to medium (range  $d = .29 - .76$ ). This finding may be partially explained by the remaining studies failing to match the maltreatment and comparison groups on key demographic data. With sample sizes ranging from 9-584 and the failure of all the reviewed studies to comment on statistical power, studies may have been underpowered to detect stronger associations between SIP and maltreatment. However, this was only acknowledged in one study (Tiesl & Cicchetti, 2007) as a possibility and was the sole study to explicitly provide an effect size score for SIP group differences.

Examination of the observed effect sizes in Table 2 suggest that physical abuse had the greatest negative impact on the ability to competently process social information, compared to other maltreatment types. This finding may be associated with the higher methodological quality of three of the studies focussing solely on physical abuse

(Dodge et al., 1990; 1995; Haskett, 1990). The studies by Dodge and colleagues were strengthened by drawing maltreatment and non-maltreatment samples from the same source and controlling for several child and ecological variables in statistical analysis. These studies (Dodge et al., 1990; 1995), drawing on the same sample, identified effect sizes between the physically abused and the comparison groups in SIP performance ranging from  $d$  of .29 to .45.

Two further studies (Tiesl & Cicchetti, 2007; Ward & Haskett, 2008) found that physically abused children displayed a poorer performance on response access components than non-maltreated peers but did not differ in their tendency to make hostile attributions. However, methodological limitations inherent in these studies, suggest caution is required in interpreting these findings. Although Tiesl and Cicchetti (2007) used a coding system for maltreatment and controlled for some confounding variables, the assessor was not blind to the child's maltreatment status. Administering the SIP tasks in group format may have provided the opportunity for the copying of a peer's responses. Ward and Haskett (2008), despite finding the maltreatment and non-maltreatment groups differed significantly in family size, did not control for this in subsequent analysis. The study did not use a standard classification system for coding maltreatment. It is also unclear whether the assessor was blind to the maltreatment status of the children or the goals of the study.

Investigating the association of non-physically abused maltreatment samples and SIP operations was complicated by the preponderance of physically abused samples in the reviewed articles and the limited number of non-physically abused maltreatment subtype samples. Maltreatment subtypes were pooled in three studies (Kim &

Cicchetti, 2008; Price & Landsverk, 1999; Smith & Walden, 199), while the non-physically abused maltreatment sample was pooled in the study by Tiesl & Cicchetti (2007) meaning these studies could not be used to address this question.

Two studies (Keil & Price, 2009; Price & Glad, 2003) compared groups of both physically abused and neglected children with non-maltreated peers. Price and Glad (2003) found that physically abused children were more likely than neglected or non-maltreated children to attribute hostile intent across a variety of relationship figures and there was no significant differences in intent attributions between the neglected and comparison groups. However, the relatively small maltreatment sample (N=44) may have led to the study being underpowered and the failure to control in statistical analysis for significant demographic differences between the maltreatment and non-maltreatment samples is problematic.

Keil and Price (2009) reported that neglected children were more likely to access aggressive responses in group entry situations, while physically harmed children were more likely to demonstrate hostile intent and to access aggressive responses in the peer provocation domain. These findings suggest that SIP differences between physically abused and neglected children may be sensitive to the social domain type. However, there was no difference between either of the maltreatment samples or the comparison group on the encoding and response evaluation SIP steps. This study was overall deemed to be of low methodological quality with no control of potential confounding variables with the exception of gender, and a lack of demographic information on the non-respondents. The study included children between the ages of 5-11 and therefore was not sensitive to the developmental stages of children. Overall,

the reviewed studies do not permit firm conclusions to be drawn on the association between SIP and non-physically abused maltreated children.

What stage of SIP is most impacted on by maltreatment?

Given that only 3 studies investigated all stages of SIP (Dodge et al., 1990; 1995; Keil & Price, 2009), it was not possible to comprehensively answer this question. The Dodge et al.'s study (1995) scored highest on the quality criteria and found the strongest effects for encoding ( $d=.45$ ) and response access ( $d=.41$ ). Keil and Price (2009) identified the strongest effect sizes for response access ( $d=.51$ ) and interpretation ( $d=.34$ ) but reported non-significant findings for encoding and response evaluation.

Examination of the effect sizes as displayed in Table 2 would appear to suggest that interpretation and response access are most impaired by maltreatment, a finding perhaps due to these components being measured in the reviewed articles more often (assessed in 6 and 8 studies respectively) than encoding and response evaluation that were assessed in 3 and 4 studies respectively. However, large effect sizes ( $d>.08$ ) was only identified for the response access component (Haskett, 1990; Smith & Walden, 1999; Trickett, 1993) but these studies did not explore the other SIP steps. Price and Glad, 2003) reported moderate to large effect sizes ( $d$  of .71 to .76) for hostile intent attributions for key relationship figures. However, this finding should be interpreted with caution as the Cronbach's alpha for the measures on intention for various relationship figures ranged from .49-.64 indicating unacceptable reliability. Additionally, significant between group differences in maternal health and SES status were not controlled for in the analysis. The findings may have also been inflated as

comparison families were recruited through advertisement and thereby possibly introducing a self-selection bias.

What is the association between SIP and psychosocial outcomes?

The association between SIP and psychosocial outcomes for each of the reviewed studies is displayed in Table 3.

INSERT TABLE 3 HERE

Overall, the reviewed studies demonstrated a negative association between SIP and psychosocial functioning in maltreated children, with two studies (Dodge et al., 1995; Price & Landsverk, 1998) indicating that SIP operations accounted for between 7-11% of the variance in behavioural outcomes. The studies by Dodge and colleagues reported only small associations between each SIP step and behavioural outcomes at 6 months ( $r=-.21$  to  $.19$ ) and 3 and 4 year follow-up ( $r-.15$  to  $.24$ ) (Dodge et al., 1990; Dodge et al., 1995). The failure of Dodge et al. (1995) to specify whether the teachers were blind to the maltreatment status of the children and the sole reliance on carer report of the child's behaviour in the Price and Landsverk (1998) may have introduced potential bias to the reported findings. However, the quality of the studies by Dodge and colleagues was strengthened by controlling for several potential mediating variables and by their longitudinal design. Price and Landsverk (1998) similarly measured behavioural outcomes 6 months after completing the SIP instruments.

The results of the reviewed studies suggests that externalising difficulties were more often associated with SIP deficits in maltreated children rather than internalising



symptoms, perhaps as they were more often assessed than internalising symptoms. For example, Price and Landsverk (1998) found that the interpretation and response access steps significantly accounted for 10% of the variance in externalising scores but only a non-significant 7% of the variance in internalising symptoms. However, it should be noted that the study only explored two SIP stages. The psychosocial instrument was completed by foster carers who may not have known the child for a long period of time and therefore may have struggled to rate internalising symptoms that are arguably more difficult to identify than externalising symptoms. The mixed maltreatment sample and the wide age range of participants (5-12 years) may have masked important maltreatment sub-type and developmental differences in SIP responses. However, attributing hostile intent to peers was protective of subsequently developing internalising difficulties in one study (Lansford et al., 2006). Similarly Kim and Cicchetti (2007) found that inflated self-efficacy to assertively manage peer disputes was protective of internalising difficulties. These findings may help to explain the non-significant association between the aggregate of SIP deficits and internalising outcomes in the Price and Landsverk (1998) study.

There was no consensus between the studies regarding the SIP operation most associated with impaired psychosocial outcomes. In relation to externalising symptoms, two studies identified response access as the strongest predictor (Dodge et al., 1995; Price & Landsverk, 1999), although these associations were small ( $r < .25$ ). Irrelevant attributions and response access were negatively associated with greater internalising difficulties (Price & Landsverk, 1999). It was not possible to examine the relationship between maltreatment subtypes, apart from physical abuse, and psychosocial outcomes as the studies typically pooled the maltreatment sub types.

Interestingly, there were several potential psychosocial outcomes of interest, for example, friendship quality, social competence, or self-esteem that were not assessed. The reviewed studies exploring the relationship between SIP operations and psychosocial outcomes do therefore not allow any firm conclusions to be drawn other than a generally negative impact of impaired SIP on psychosocial outcomes.

### **Discussion/synthesis**

This review set out to answer three questions relating to SIP in children and their impact on psychosocial outcomes. Firstly, the overall pattern of SIP in maltreated children demonstrates more errors than non-maltreated peers. Physical maltreatment appeared to have the strongest effect on SIP impairments but there were insufficient studies investigating SIP in other pure maltreatment subtypes to draw any firm conclusions. Secondly, it was also not possible to adequately address the second question of whether any stage of SIP is most impacted on by maltreatment as only 3 studies investigated all stages of SIP. The current review would appear to suggest that the interpretation and the response access domains are most impaired by maltreatment but this appears to be primarily due to these components being assessed in the reviewed articles more than other SIP steps. Thirdly, the reviewed articles suggest that impaired SIP operations in maltreated children are modestly associated with poorer psychosocial outcomes.

Addressing the review questions was assisted by aspects of the studies that reflected good methodological quality; identification of explicit aims or clearly stated hypotheses; sufficient information provided to replicate the procedures, and specifying the form of maltreatment experienced by the children. The psychometric

properties of the instruments used for the assessment of both SIP and psychosocial outcomes were generally acceptable for the reviewed studies. However, there were exceptions for several of the SIP instruments with a range of Cronbach's alpha of .46-.56 reported for hostile attributions (Price & Glad, 2003; Price & Landsverk, 1999; Tiesl & Cicchetti, 2007) and .53 for encoding in the Keil and Price (2008) study.

Nonetheless, the review highlighted significant methodological limitations with the reviewed studies that made it difficult to interpret and integrate the findings. The over reliance on cross sectional design means it is not possible to draw causal inferences. The failure of the studies to consistently ensure that the assessors were blind to the child maltreatment status, not specifying the response rate or provide contrasts of maltreated families who opted-in to the study with the population targeted as a whole, and the recruitment of comparison families in several studies through self-selection in response to advertisement thereby creates uncertainty as to whether there were potential biases in the research.

The reviewed studies did not generally report both inclusion and exclusion criteria, with the presence of maltreatment typically sufficient for inclusion to the study. Overall, the studies were generally exploratory, recruiting a sample and then describing it. None of the studies conducted a power calculation suggesting that samples may have been used because of convenience rather than their ability to address the research aims.

The failure of the majority of the studies to routinely and consistently control for effects of key variables the maltreatment literature suggests may impact on SIP operations is a further methodological limitation. Ward and Haskett (2008) found that

maltreated children came from larger families than non-maltreated children but did not control for this in subsequent analysis. Large family size has been found to be a risk factor for youth delinquency (Robbins, 1966). Intellectual functioning, a potential confounding, was assessed in only one study (Haskett, 1990). Similarly, only one study (Smith & Walden, 1998) controlled for receptive vocabulary even though SIP tasks require significant verbal comprehension ability and maltreatment is known to have an adverse impact on language ability (Coster et al., 1994). Considering that all the studies included multi-ethnic samples, it is not clear if English was the first language of the participants. The frequency and severity of physical abuse were related to a greater tendency to make hostile attributions (Price & Glad, 2003), but these variables were not assessed in the other reviewed studies. Overall, the lack of consideration of potential confounders in many of the studies makes it difficult to interpret the results.

The reviewed studies recruited mixed ethnicity samples from the USA making it difficult to generalise the results to maltreated children in other countries and specific ethnic groups as the studies did not provide separate results by ethnicity and nor could it be determined whether there were gender differences in SIP operations in the reviewed studies.

Many of the methodological concerns in child maltreatment research discussed by Conway and Hansen (1989) and Trickett and McBride-Chang (1995) thus appear to be reflected in the reviewed studies investigating SIP in maltreated children. Accordingly, the methodological quality of future research would benefit from longitudinal designs, clearly specified eligibility criteria and greater consideration of

potential confounders. The quality of future studies would also be strengthened by the recruiting samples in a manner that reduces the potential for bias. Ensuring that the assessors of SIP operations are blind to the child maltreatment status, the use of multi-method and informant assessment of psychosocial outcomes and consideration of a greater number of psychosocial domains that may be impacted on by impaired SIP operations would also assist in improving the quality of future studies. Consistent investigation of all stages of SIP in maltreatment samples and focussing SIP research on pure maltreatment subtypes would also be informative. Finally, there is a need to replicate the existing findings in cultures outside the USA and it may be useful to explore potential ethnic differences in SIP operations.

#### Limitations of the review

The exclusion of unpublished studies may have prevented the inclusion of studies that could have addressed some of the key issues to be resolved in the field. The inclusion of unpublished studies could yield studies yielding null findings and one possibility is that the effect sizes reported in the review may be greater than in unpublished studies. Similarly, the inclusion of non-English language papers could have highlighted cross cultural differences in SIP operations in maltreated children. The review may have benefited from the search of additional electronic databases or key child psychology and psychiatry peer- reviewed journals.

#### **Conclusions**

It appears that most previous research is consistent in specifying deficits in social information processing in maltreated children and this is partially accountable for poorer outcomes in identified psychosocial domains. The methodological quality

could be improved in several areas and the review has highlighted areas that warrant further study and has identified ways to improve the quality of subsequent research.

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Table 1

*Key Characteristics of Reviewed Papers*

Study / Design	Quality	Sample Characteristics			Variables Controlled for in Analyses	Maltreatment Assessment	Recruitment	Opt-In Rate	Drop Out Rate	
		N/ Gender	Mean Age	Ethnicity						MT v non-MT Differences
Dodge et al (1990)	High	Total=584	4	83% Caucasian	MT families	Interview with mother	MT and non-MT at Kindergarten registration	70%	1.6%	
Dodge et al. (1995)	High	MT=69,		17% non-	lower SES and					
Lansford et al. (2006) (3 longitudinal studies drawing on same sample)	Mod	non-MT =515 52% male		Caucasian	more single parent households					
Haskett et al (1990) Cross-sectional	Mod	Total=18 MT=9 Non-MT=9 66% male	4.8 (range=4.5-6.5)	38% Caucasian 62% non-Caucasian	NS	MT and non-MT groups matched on age, gender, IQ an verbal comprehension	Examination of social services records	MT: social services Non-MT: school	NR	NA
Keil & Price (2009) Cross-sectional	Low	Total=188 MT=100 Non-MT=88 49% male	6.5 (range 5-8)	51% Caucasian 49% non-Caucasian	NR	Gender	Classification system (Barnett et al., 1993)	MT: social services records. Non-MT group: self-selection to community advertisement	44%	NA
Kim & Cicchetti (2003) Cross-sectional	Mod	Total=500 MT=305 Non-MT=195 63% male	7.1 (1.25) (range 5.6-11.5)	28% Caucasian 82% non-Caucasian	NS	Gender	Social services records coded using classification system (Barnett et al., 1993)	Research summer day camp for MT and non-MT group-in receipt of	NR	NA

social security

Price & Glad (2003) Cross-sectional	Mod	Total=100 MT=44 Non-MT=56 51% female	6.5	51% Caucasian 49% non-Caucasian	MT families lower SES and more severe maternal health problems at birth	Gender	Classification system (Barnett et al., 1993)	MT-social services. Non-MT-self-selection to community advertisement.	NR	NA
Price & Landsverk (1999) Longitudinal	Mod	Total=124 (MT) 46% male	7 (range 5-12)	43% Caucasian 57% non-Caucasian	NA	Age, gender	Reason for placement into foster care	Children placed in foster care in 18 month period	NR	23%
Smith & Walden (1999) Cross-sectional	Mod	Total=45 MT=15 Non-MT=30 (15=high risk, 15=low risk). 53% male	4.58 (.57) (range 3-6)	13% Caucasian 87% non-Caucasian	MT mothers less education, more single parents, more unemployed, less income. MT children lower receptive vocabulary	Maternal stress, child receptive vocabulary	Local state standards	MT: therapeutic centre for MT children. High risk: Head Start. Low Risk: preschool	NR	NA
Tiesl & Cicchetti (2007) Cross-sectional	Mod	Total=267 MT=167 Non-MT=100 57% male	8.04 (1.63) (range 6-12)	71% Caucasian 29% non-Caucasian	NR	Age, gender, ethnicity	Interview with social workers or classification system (Barnett et al., 1993)	MT: social services records. Non-MT: self-selection to community advertisement	NR	NA
Trickett (1993) Cross-sectional	Mod	Total=58 MT=29	7.4 (range 4-11)	62% Caucasian 38% non-	NS	Age, gender, parenting beliefs and practices	Examination of social services	MT: social services	NR	NA

		Non-MT=29 62% male		Caucasian			records	Non-MT; self-selection to advertisement		
Ward & Haskett (2008) Cross-sectional	Mod	Total=175 MT=98 Non-MT=77 50% male	7.33 (1.54) (range 5-10)	27% Caucasian 73% non-Caucasian	MT smaller family size	none	Social services records	MT-social services records. Non-MT-self-selection to community advertisement.	NR	NA

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*Note:* MT= maltreatment group: non-MT= non-maltreated comparison group: NR=not reported: NA=not applicable: NS= not significant; Mod=moderate



Table 2

*The Relationship between SIP and Maltreatment in the Reviewed Studies*

Study	MT Group(s)	SIP Steps (MT group compared to non-MT group)			
		Encoding	Interpretation	Response Access	Response Evaluation
Dodge et al. (1990)	PA	>encoding errors* (d=0.29)	>attributions of hostile intent* (d=0.41)	<solutions to interpersonal problems* (d=0.41)	NS
Dodge et al (1995)	PA	>encoding errors*** (d=0.45)	>hostile intent* (d=0.32)	>aggressive response***(d=0.41)	>positive evaluation of aggressing* (d=0.29)
Haskett (1990)	PA	NA	NA	< solutions to social problems* (d=1.02) >negative responses* (d=1.59)	NA
Keil & Price (2009)	2 MT groups PA NG	NS	PA>non-MT: hostile attributions to peer provocation *(d==0.34)	PA>non- MT: aggressive responses to peer provocation* (d=0.51) NG>non-MT aggressive response to group entry* (d=0.41)	NS
Kim & Cicchetti (2003)	Mixed MT (PA,NG,SA,EM)	NA	NA	NA	Young MT children (< 8 years) > self-efficacy to assertively respond to peer conflict** (d=.29)
Price & Glad (2003)	2 MT groups PA NG	NA	PA>non-MT: hostile intent to mother** (d=.76) and father* (d=.50). PA males> non-MT: hostile	NA	NA

				intent to unfamiliar teachers *(d=.73) and unfamiliar peers* (d=.71)		
Smith & Walden (1999)	Mixed MT (NG,PA,SA)	NA	NA		MT children < problem-focussed strategies than non-MT high risk* (d=.8) and non-MT low risk*(d=1.09) groups. MT status not associated with response access when cognitive language skills controlled for.	NA
Tiesl & Cicchetti (2007)	2 MT groups PA Mixed MT (SA, NG, EM)	NA	NS		PA (d=.33)* and mixed MT (d=.30)*> accessing aggressive responses compared to non-MT	NA
Trickett (1993)	PA	NA	NA		PA> low quality solutions** (d=.86)	NA
Ward & Haskett (2008)	PA	NA	NS		MT < number* (d=.52) and quality*(d=.53) of competent solutions to peer disputes	NA

*Note:* MT=maltreated group; non-MT=non-maltreated group; NA=not assessed; NS= assessed but not significant; PA=physically abused; NG=neglected; SA=sexually abused; EM: emotionally maltreated:\*p <.05: \*\* p<.01: \*\*\*p<.001

Table 3 *The Relationship between SIP and Psychosocial Outcomes in the Reviewed Studies*

Study	Psychosocial outcomes	MT Group	SIP Steps				
			SIP overall	Encoding	Interpretation	Response Access	Response Evaluation
Dodge et al. (1990) Aggression	Aggression	PA	Predicted TR* (R=.24), PR** (R=.25) and OBS*** aggression (R=.29) at 6 month FU	TR aggression** (r=.16) and PR aggression*(r=.13) at 6 month FU	OBS aggression* (r=.14) at 6 month FU	At 6 month FU, TR aggression** (r=.16), PR aggression*** (r=.19) and OBS aggression (few competent solutions)** (r=-.21)	OBS aggression and positive evaluation of aggression** (r=.16) at 6 month FU
Dodge et al (1995) Externalising difficulties/ aggression	Externalising difficulties/ Aggression	PA	9% and 11% variance in externalising scores at 3 (R=.29)*** and 4(R=.32)*** year FU	TR aggression at 3 years FU*** (r=.19, $\beta$ =.15) TR aggression at 4 years FU*** (r=.23 $\beta$ =.22)	TR aggression at 4 year FU* (r=.15, $\beta$ =.10)	TR aggression and aggressive response access at 3 years FU*** (r=.24, $\beta$ =.20) and at 4 years FU*** (r=.23, $\beta$ =.18)	NS
Kim & Cicchetti (2003)	Externalising+ internalising difficulties	Mixed MT (PA,NG,SA,EM)	NA	NA	NA	Social self-efficacy in peer conflict negatively associated with internalising difficulties* ( $\beta$ =-.14)	NA

Lansford et al. (2006)	Externalising+ internalising Difficulties	PA	NA	NA	Hostile intent at age 4 protective of internalising difficulties at 8 years FU*	NA	NA
Price & Landsverk (1999)	Externalising+ internalising Difficulties	Mixed MT (PA, NG, EM, SA)	Controlling for age and sex, SIP explained 10% variance in externalising scores* and 7% in internalising scores (NS) at 6 months FU		Irrelevant attributions and internalising difficulties at 6 months FU* (r=.19)	At 6 months FU, seeking adult help* and (r=.20) ineffective strategies** (r=.25) related to externalising difficulties and ineffective strategies related to internalising difficulties* (r=.18)	NA
Tiesl & Cicchetti (2007)	Aggressive/ disruptive behaviour	Mixed MT PA+NG	NA	NA	Hostile intent predicted PR behavioural difficulties** ( $\beta=.24$ )	NA	NA

Note: MT=maltreated group; non-MT=non-maltreated group; TR=teacher rated; PR=peer rated; OBS=observed; NA=not assessed; NS= assessed but not significant; PA=physically abused; NG=neglected; SA=sexually abused; EM: emotionally maltreated; FU=follow-up: \*p <.05; \*\* p<.01; \*\*\*p<.001



## **Chapter 2: Major Research Project Paper**

**A comparison of social information processing in children with and without  
Reactive Attachment Disorder and the association with behavioural difficulties.**

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## **Lay Summary**

Reactive Attachment Disorder (RAD) arises from an early adverse environment that prevents the formation of an attachment with an adult caregiver. This is assumed to negatively impact on subsequent social interactions. This study investigated the manner of understanding and responding to peer-related social information in ambiguous situations in a group of 46 children, aged 4-12. Twenty-three children had a diagnosis of RAD and 23 children did not have RAD. Children were shown videos or presented with short stories accompanied by pictures and asked questions about the scenarios to assess their ability to interpret and respond to ambiguous social situations. Caregivers completed two brief questionnaires asking about behavioural problems the children may experience. The results indicated that children with RAD, when compared to the children without RAD, had greater difficulty in perceiving relevant information, were more likely to think the peer was hostile, more often indicated they would respond with aggression to perceived provocation, and were more likely to endorse responding aggressively or avoiding the peer. The impaired ability of children with RAD to accurately understand and process the social information was related to greater behavioural difficulties. The results suggest that children with RAD have difficulty in making sense of and responding appropriately to ambiguous social situations with children their own age and this is associated with increased behavioural difficulties. The strengths and limitations of the study are discussed in addition to suggestions for future research.

## **Abstract**

The aims of this cross-sectional case-control study were to explore the social information processing (SIP) patterns of children with reactive attachment disorder (RAD) and their association with behavioural difficulties. The sample consisted of 23 children with RAD aged 4-12 matched by age and gender with a comparison sample of typically developing peers. Children completed an assessment package investigating the encoding, interpretation, response access and response evaluation components of SIP and their intellectual functioning and verbal comprehension, while caregivers completed two instruments measuring child behavioural difficulties. The children with RAD displayed significantly more errors in encoding, interpretation and response evaluation than the comparison group. There was also a tendency for children with RAD to access more aggressive responses than comparison children. In addition, there were strong associations between aspects of SIP and child behavioural difficulties, with the strongest association between encoding and emotional problems. However, both intellectual functioning and verbal comprehension were significantly associated with behavioural difficulties suggesting these variables may impact on the relationship between SIP and behavioural difficulties. The overall findings suggest that children with RAD process social information in a biased manner and this is partially associated with behavioural outcomes. The strengths and limitations of the study are discussed in addition to suggestions for future research.

### **Keywords**

Reactive attachment disorder, Social information processing, Social-cognitive processes, Maltreated children, Behavioural difficulties



## **Introduction**

### **Reactive Attachment Disorder**

Reactive Attachment Disorder (RAD) of infancy and early childhood is encapsulated in both DSM-IV TR (American Psychiatric Association [APA], 2000) and ICD 10 (World Health Organisation [WHO], 1992). DSM-IV assumes that RAD arises from the persistent neglect of the child's basic emotional or physical needs or from repeated changes of primary caregiver that prevent the formation of stable attachments (APA, 2000). ICD 10 similarly posits that RAD is a result of grossly inadequate childcare in the form of psychological or physical abuse or neglect. Both classification systems identify two patterns of RAD: the inhibited/withdrawn form in which the child only infrequently responds to comfort, fails to demonstrate a preference for an attachment figure and more generally responds to most social interactions in a developmentally inappropriate way; and the disinhibited pattern of RAD that is associated with indiscriminate sociability or a failure to display selective attachments (APA, 2000; WHO, 1992). Despite both classification systems implicitly assuming that the inhibited and disinhibited patterns are relatively independent, recent research suggests that mixed presentations are more common (O'Connor, 2002; Zeanah et al., 2004).

There are currently no large scale community prevalence studies of RAD in school-age children but available evidence suggests RAD is relatively rare other than in institutionalised populations of preschool children or those with a severe history of maltreatment (Prior & Glaser, 2006). Despite co-morbidity with alternative diagnostic categories, RAD appears to explain a unique cluster of symptoms not accounted for by other diagnostic categories (Minnis et al., 2007; Smyke, Dumitrescu, & Zeanah, 2002).

### RAD and attachment patterns

RAD is the only attachment disorder recognised in the current psychiatric classification systems. Both ICD 10 (WHO,1992) and DSM IV TR (APA,2000) distinguish RAD from insecure attachment patterns by emphasising a wide range of socially maladaptive behaviours associated with RAD, not solely attachment behaviours, that are evident across a variety of relationship types, whereas traditional attachment theory (Bowlby, 1982) focuses specifically on the child-caregiver relationship attachment quality. Attachment theory (Bowlby, 1982) also assumes that infants have formed a discriminating attachment to their caregiver, but this may not be valid for children with RAD, whose early years were characterised by extreme neglect, institutional upbringing or multi-home placement experiences. The failure to develop a discriminating attachment is assumed to subsequently limit the child's development of organisation of patterns of behaviours associated with attachment theory; for example affect regulation and exploration, unlike securely and insecurely attached children (O'Connor et al., 2003). The distinction between attachment disturbance behaviour and attachment patterns is further evident from the finding that RAD has been found to coexist with both secure and insecure attachment patterns in samples of institutionalised children (Chisholm, Carter, Ames & Morrison, 1995; Smyke et al., 2002) and in non-institutionalised school-aged children (Minnis et al., 2009).

### Social information processing

Bowlby (1982) conceptualised internal working models as mental representations based on the relationship between individuals and their primary attachment figure that

act as a template for future social relationships. According to the influential and widely researched model of SIP (Crick & Dodge, 1994), these mental representations guide and organise the way in which social information is processed. Crick and Dodge (1994) propose that in any social situation, an individual will go through a series of steps before enacting a specific behaviour: encoding of situational cues; interpretation of those cues; generating or accessing potential responses; and evaluation of these responses before choosing one for behavioural enactment.

### SIP in maltreated children

SIP operations have not been explored in children with RAD but SIP deficits have been identified in maltreated children who have experienced physical or emotional abuse and neglect. For example, physically harmed children demonstrate more errors in each SIP step compared to non-maltreated peers (Dodge, Bates & Petit, 1990; Dodge, Petit, Bates & Valente, 1995), while incompetent SIP operations have also been identified in children who have experienced neglect only (Keil & Price, 2008; Tiesl & Cicchetti, 2007) and multiple forms of maltreatment (Price & Landsverk, 1999; Smith & Walden, 1999). The elevated risk of externalising and internalising symptoms in maltreated children is well established (Dodge et al., 1990; 1995; Tiesl & Cicchetti, 2007). In maltreatment samples, SIP is associated with behavioural outcomes (Dodge et al., 1990; Dodge et al., 1995; Price & Landsverk, 1999).

### Social cognitive processes in RAD

There are reasons to suspect that SIP operations in maltreated children may not be directly comparable to SIP in children with RAD. Published studies of SIP in

maltreated children did not screen or assess for the presence of RAD. Although a prevalence of RAD of 38-40% among maltreated children in foster care has been reported (Zeanah et al., 2004), this finding suggests that the development of RAD is far from an inevitable consequence of maltreatment.

Given that RAD is characterised by a disruption in the development of attachment related behaviour resulting from a failure to develop a selective attachment (O'Connor et al., 2003), the SIP patterns in this diagnostic category may reflect a more unhealthy internal working model of relationships than maltreated children without RAD. Two recent studies exploring attachment narrative representations in children with RAD (Heller et al., 2006; Minnis et al., 2009) found that children with RAD displayed poor modulation of arousal and their narratives were characterised by poor coherence, a high level of disorganisation and presence of conflicted and juxtaposed views and behaviour (Heller et al., 2006; Minnis et al., 2009). The limited capacity to integrate social information in an organised manner in children with RAD, as evidenced by these studies, appears to reflect a disturbance in internal working models as suggested by O'Connor et al. (2003).

#### Summary and aims of current study

This study aimed to examine SIP operations in children with RAD and thereby extend the preliminary research on attachment representations in children with RAD. The focussing on the specific components of information processing to increase our understanding of the internal working models of this diagnostic group supports previous recommendations by attachment theorists (Main, 1990; Zimmerman, 1999). Given that RAD is characterised by impaired social relatedness across relationship

figures, it will be informative and potentially clinically useful to inform intervention, to explore peer-related SIP operations in children with attachment disturbance.

Maltreated children have been found to have significantly lower intellectual functioning (Oates, Peacock & Forest, 1984) and verbal comprehension skills (Trickett, 1993) when compared to non-maltreated children. Children with behavioural difficulties have also been shown to perform more poorly than matched comparison children on any task that is administered orally or calls for a verbal response (e.g., Lynam, Moffitt & Stouthamer-Loeber, 1993) while intellectual functioning has been associated with interpersonal problem solving ability (Carlson, Moses, & Breton, 2002). Therefore, the current investigation will measure both intellectual functioning and verbal comprehension.

The study hypotheses were that children with RAD would display more errors in social information processing compared to the children without RAD and, that, for the RAD group, poorer SIP performance will be associated with greater behavioural difficulties. It was intended to control for intellectual functioning and verbal comprehension in the analysis for both hypotheses.

## **Methods**

### **Participants**

The sampling strategy aimed at recruiting a group of children with RAD matched by gender and within 18 months of age to a comparison group of children at low risk of RAD recruited from a school based general population. The study was open to male and female children aged between 4 and 12 years of age. Proficiency in the English language was essential as the SIP tasks involved administration of verbal information.

Exclusion criteria included a moderate to severe learning difficulty, an Autistic Spectrum Disorder, significant communication impairments, including speech and language difficulties or current maltreatment of children, as judged by the referrer.

For the clinic referred cases, the referring clinician deemed the children to fulfil the criteria for a RAD diagnosis using either ICD 10 (WHO, 1992) or DSM IV (APA, 2000) guidelines. For Adoption UK-Scotland, a charity offering support to adoptive parents, the children had been diagnosed with RAD in a previous research project. Twenty-eight children with RAD were referred to the study; 2 children met exclusionary criteria and 3 families declined to participate. The 23 children with RAD that were included in the study were referred from a voluntary sector-based therapeutic centre (9); Child and Adolescent Mental Health Services (CAMHS) (8); Adoption UK- Scotland (5) and a specialist CAMHS team for Looked After and Accommodated Children (1). However, as RAD cases were referred from multiple teams and clinicians, it was not possible to reliably establish the number of families invited to take part and, therefore, the response rate. For the comparison group, 30 families out of 108 contacted by a local school agreed to participate in the study yielding a response rate of 27.7%. Twenty-three families were ultimately included in the study with selection based on the matching of comparison cases by age and gender with children in the RAD group.

#### Power calculation

There is no research examining SIP operations in children with RAD. A study of a related clinical sample was therefore used to estimate the required sample size to obtain power of 0.8 at an alpha of .05. Orobio de Castro et al. (2005) compared the SIP performance of a sample of aggressive children (N=54) with a non-aggressive

comparison group (N=30) using an ANCOVA and controlling for verbal ability. Mean effect sizes of .63 and .68 were observed for the interpretation and response access components. Using a Power Table for ANCOVA (Barker Bausell & Li, 2002, p.131-132), it was calculated that 35 subjects per group, would be adequate to test the first hypothesis using ANCOVA for a power of 0.8, an alpha of 0.05, and an effect size of between 0.60 and 0.65.

### Design

A between groups matched case control design was utilised to address the first hypothesis, whether there were significant differences in SIP between children with and without RAD. In order to answer the second hypothesis, whether SIP variables are associated with child behavioural difficulties, a correlation design was used. It was intended to control for intellectual functioning and verbal comprehension in both sets of analyses.

### Measures

Caregivers completed a demographic inventory (see Appendix 2.3).

#### *Relationship Problems Questionnaire (RPQ)*

The RPQ (Minnis et al., 2007) is a 10-item parent report questionnaire assessing inhibited and disinhibited RAD symptoms (see Appendix 2.4). The total RPQ scores ranged from 0-30 with higher scores indicative of greater RAD-related behavioural difficulties. The RPQ has acceptable sensitivity and demonstrates good internal consistency (Minnis et al., 2007). The Cronbach's alpha in the current study was .89 which indicates excellent internal reliability.

### *Strengths and Difficulties Questionnaire (SDQ)*

The SDQ (Goodman, 1997) is a 25-item inventory that yields scores on 5 subscales; hyperactivity, emotional symptoms, conduct problems, peer problems and prosocial behaviour. Scores from the four difficulties subscales were combined to yield a total difficulties score with higher scores indicating greater difficulties. The psychometric properties of the SDQ are well established with a high internal consistency and test-retest reliability (Goodman, 2001). The Cronbach's alpha coefficients in the current study for the total difficulties and prosocial behaviour subscale were .94 and .71 respectively, demonstrating acceptable reliability.

### *Wechsler Intelligence Scale for Children – Fourth Edition*

The Vocabulary and Block Design subtests of the Wechsler Intelligence Scale for Children- Fourth Edition (WISC-IV) (Wechsler, 2003) were used to provide an estimate of intellectual functioning. These two subtests have excellent reliability and correlate highly with the full scale IQ over a wide age range (Wechsler, 2003). A verbal comprehension index score was calculated from scores on the Vocabulary, Similarities and Information subtests.

### *Video stimuli*

Children were presented with 12 prepared video recorded stimuli, each of approximately 30 seconds duration, to assess their patterns of encoding of social cues (Dodge et al., 1990; 1995). The internal consistency calculation yielded a Cronbach's alpha of .48. This alpha coefficient is similar to those found for measures of encoding in previous studies (e.g., Dodge et al., 1995; Keil & Price, 2008). The original



instrument consisted of 24 vignettes but there was concern that administering the 24 vignettes in the current study would be unnecessarily burdensome for the children. Correspondence with the developers of the instrument indicated that the local context should be considered and that the administration of 12 vignettes was acceptable. Additional information on the video stimuli is provided in Appendix 2.5.

#### *Home Interview with Child (HIWC)*

The HIWC (Dodge et al., 1990; 1995) was designed to assess children's intent attributions and the accessing of aggressive responses in peer provocation and peer rebuff situations. A copy of the instrument and additional information are provided in Appendices 2.6 and 2.7. Several word and phrases used in the original instrument were modified to be culturally sensitive to the Scottish context and to enhance participant understanding, for example, 'field trip' was replaced with 'school trip'. The Cronbach's alpha coefficient for intent attributions in the current study was .60 and is similar to levels obtained for attributional measures in previous studies (e.g. Dodge, Price, Bachorowski, & Newman, 1990; Dodge & Price, 1994; Price & Glad, 2003). The Cronbach's alpha for response access was .73 indicating acceptable internal consistency and was similar to values obtained in previous studies (e.g. Dodge et al., 1995; Price & Landsverk, 1999).

#### *Things That Happen To Me (TTHTM)*

The TTHTM (Dodge et al., 1990; Dodge et al., 1995) asks children to evaluate assertive, aggressive, and withdrawal (passive) solutions to peer disputes in terms of their effectiveness in positive instrumental and interpersonal outcomes (see Appendices 2.8 and 2.9 for a copy of the instrument and additional information). Some of the terminology used in the original instrument was modified to make it

more accessible to Scottish children, for example, with 'queue' replacing 'line'. The Cronbach's alphas in the current study were .70, .68 and .65 for the positive evaluation of assertive, aggressive and passive responses respectively. The instrument also assesses children's self-efficacy to enact these responses and to express their preference for either an instrumental or interpersonal goal.

### Procedures

The study received ethical approval from the NHS West of Scotland Ethics Research Committee (Appendix 2.10) and NHS Research and Development Approval (Appendix 2.11). Permission to contact primary schools to recruit children for the comparison group was granted by Glasgow City Council Education Services (Appendix 2.12). The principal investigator initially met with child services and the Head Teacher from a local school to explain the project and eligibility criteria for children to be included in the project.

For the RAD group, the principal investigator met with referred families individually to explain the purpose of the study and provide them with a participant information sheet after they had expressed an interest to the referrer in participating in the research project. Separate participant information sheets were provided to caregivers and children (Appendix 2.13). Written informed consent from both caregivers and children aged 8 years or over, or assent in the case of younger children, preceded participation in the study (Appendix 2.14). Researcher contact with RAD cases was either at Yorkhill Hospital for Sick Children or on-site at the referring service.

For the comparison group, the Head Teacher mailed a participant information sheet and a consent form to identified families that met the eligibility criteria. An amendment to ethical approval was sought and obtained (Appendix 2.15) to give

caregivers the option of accompanying their child to the school for testing or the researcher meeting with the child at school without the caregiver being present.

The child testing materials were completed in approximately 60-90 minutes. A break of ten minutes was offered to each child after 45 minutes with additional breaks provided if deemed necessary by the interviewer or requested by the child. The parent report measures were completed while the interviewer was administering the child related material, or, for the majority of school referred children, completed at home and returned to the school. Following each testing session, the researcher provided the child and caregiver, where present, the opportunity to ask questions. The assessor was not blind to the child's RAD status or to the hypotheses of the investigation.

## **Results**

### Analysis

The data were analysed using the statistical package, PASW version 18. Kolmogorov-Smirnov and Shapiro Wilks tests revealed that the majority of the data for analysis was not normally distributed. As the data were not amenable to transformation, non-parametric methods were used to perform the main analyses. Mann-Whitney U tests were used to explore between group differences on SIP performance, rather than a MANCOVA as initially intended. Effect sizes were calculated for the dependent variables measures by dividing the z-score by the square root of the sample size (Rosenthal, 1991) and the effect size was categorised as small, medium or large using established criteria (Cohen, 1992). Spearman's *rho* correlation, and not a partial correlation as initially intended, was used to explore the association between SIP performance and behavioural difficulties in children with RAD.

### Participant characteristics

Descriptive information about the demographics is provided in Table 1

Table 1.

*Demographic Details of the RAD and Comparison Group*

	<u>RAD (N=23)</u>	<u>Comparison (N=23)</u>	
Child Gender	14 male (61%)	14 male (61%)	
Child Age	8.45 (2.03)	8.56 (2.05)	t= -.19
Living with biological parents	2 (8.7%)	23 (100%)	
Living with adoptive parents	6 (26%)	0	
Living in foster care	5 (21%)	0	
Living with kinship carer (relative)	10 (43%)	0	
Caregiver Age	43.05 (9.28)	36.77 (5.34)	t= -2.66**
Diagnosis RAD	23 (100%)	0	
Diagnosis ADHD	6 (26%)	0	
Siblings in current home	2.10 (1.48)	1.52 (1.24)	t= 1.34
IQ	88.8 (9.6)	93.5 (8.4)	t=-1.69
Total Difficulties	24 (19-28)	6 (2-10)	U=24, Z=-5.29***
Conduct Problems	6 (4-7)	1 (1-2)	U=49, Z=-4.78***
Peer Problems	5 (3-6)	0 (0-1)	U=48, Z=-4.84***
Emotional Problems	4 (4-6)	1 (0-3)	U=71.5, Z=-4.3***
Hyperactivity	9 (7-10)	2 (1-5)	U=40, Z=-9.40***
Prosocial Behaviour	6 (5-7)	9 (8-10)	U=4.62 Z=4.40 ***
Verbal Comprehension	87 (77-91)	95 (87-100)	U=326, Z=2.72***
RPQ Total	12.5 (7.75-16.25)	0 (0-0)	U=2.5, Z=-5.91***
Inhibited	5 (3.75-9.25)	0 (0-0)	U=18, Z=-5.63***
Disinhibited	5.5 (3-9)	0 (0-0)	U=15.5, Z=-5.74**

Note; p\*\*<.01, p\*\*\*<.001

Inspection of the RPQ profiles of the RAD group indicated that the great majority of children with RAD had a mixed presentation of inhibited and disinhibited symptoms with two exceptions: one child with exclusively inhibited symptoms and one with exclusively disinhibited symptoms.

A Spearman's *rho* exploring the association between IQ and verbal comprehension, and the SIP variables yielded no significant associations. For the RAD group only, Spearman's *rho* was used to explore the association between IQ and verbal comprehension, and behavioural difficulties. This analysis excluded two children who did not complete the WISC-IV as they were less than 6 years of age. For intellectual functioning, there were significant negative associations with both SDQ total difficulties ( $rho=-.59$ ,  $p<.01$ ) and hyperactivity ( $rho= -.56$ ,  $p<.01$ ). There were also significant negative associations between verbal comprehension and both conduct problems ( $rho=-.60$ ,  $p<.01$ ) and hyperactivity ( $rho=-.55$ ,  $p<.05$ ). The remaining correlations were not significant.

#### Between-group analysis

##### *Primary analysis*

Mann-Whitney U tests were conducted to explore the first hypothesis that children with RAD would display less competent SIP operations than typically developing peers. RAD status was the independent variable, while the SIP variables were the dependent variables. The medians, interquartile ranges and effect sizes for each of the SIP steps in this analysis are presented in Table 2. A Bonferroni adjustment based on an alpha level of .05 divided by the number of comparisons (six SIP operations)

established an alpha level of 0.008 required for statistical significance for group differences on each dependent variable.

Table 2  
*Group Differences in Primary SIP Variables*

	<u>RAD (N=23)</u>		<u>Comparison (N=23)</u>		P value	ES (r)
	MD	IQR	MD	IQR		
Encoding	.62	.40-.85	.33	.25-.58	.002*	.44
Interpretation	.62	.50-.75	.37	.12-.50	< .001*	.64
Response Access	3.12	2.25-3.87	2.25	1.87-3.50	.014	.35
Response Evaluation						
Assertive Response	.66	.50-1.00	1.25	.75-1.50	.015	.35
Aggressive Response	.50	.25-1.25	.25	0-.50	< .001*	.51
Passive Response	1.2	.75-1.5	.50	.25-.75	< .001*	.55

*Note.* MD=Median; IQR=interquartile range; ES=effect sizes:  $r < 0.3$  small,  $r = 0.3-0.5$  medium,  $r > 0.5$  large: \* significant at Bonferroni adjusted alpha level of .008

The results were significant for the following: encoding (Mann Whitney  $U(46) = 119$ ,  $z = -3.05$ ,  $p < .003$ ), interpretation ( $U(46) = 67$ ,  $z = -4.4$ ,  $p < .001$ ), the positive evaluation of an aggressive response ( $U(46) = 109$ ,  $z = -3.49$ ,  $p < .001$ ), and the positive evaluation of a passive response ( $U(46) = 96.5$ ,  $z = -3.74$ ,  $p < .001$ ). These findings indicated that children with RAD displayed significantly more errors in encoding and interpretation and compared to the non-RAD group and were more likely to endorse aggressive and passive responses to peer disputes. However, using the Bonferroni adjustment, the differences between the RAD and comparison groups

on response access ( $U(46) = 153, z = -2.4, p = .014$ ) and the positive evaluation of an assertive response ( $U(46) = 373.5, z = 2.42, p = .015$ ) were not significant.

### *Secondary analysis*

Secondary analysis involved conducting a series of Mann-Whitney U tests to explore group differences in the evaluation of assertive, aggressive and passive responses in achieving instrumental and interpersonal outcomes (Bonferroni alpha level set at .008) and self-efficacy to enact an assertive, aggressive, and passive response in peer disputes (Bonferroni alpha level of .017). Mann-Whitney U tests were also used to explore group differences in tendency to express a preference for an instrumental or interpersonal goal in peer disputes (Bonferroni adjusted alpha level of .025).

The first set of analyses indicated that compared to the control group, children with RAD were more likely to evaluate positively aggressive responses for both instrumental ( $U(46) = 140.5, z = -2.8, p < .006$ ) and interpersonal outcomes ( $U(46) = 110.5, z = -3.8, p < .001$ ). Children with RAD were also more likely to endorse passive responses in achieving instrumental outcomes ( $U(46) = 84.5, z = -4.09, p < .001$ ). Using the Bonferroni adjusted alpha level, there were no significant between group differences in the tendency to positively evaluate assertive responses to peer disputes for either instrumental ( $U(46) = 363.5, z = 2.24, p = .025$ ) or interpersonal outcomes ( $U(46) = 366, z = 2.30, p = .022$ ) or in the tendency to endorse passive responses for interpersonal outcomes ( $U(46) = 149, z = -2.62, p = .009$ ). The medians, interquartile ranges and effect sizes are presented in Table 3.

Table 3

*Group Differences in Response Evaluation Components*

	<u>RAD (N=23)</u>		<u>Comparison (N=23)</u>		P value	ES (r)
	MD	IQR	MD	IQR		
Assertive Response						
Instrumental	.25	.25-.50	.50	.50-.75	.025	.33
Interpersonal	.25	.25-.50	.50	.25-.75	.022	.33
Aggressive Response						
Instrumental	.50	.25-.75	.25	0-0.50	.005*	.41
Interpersonal	.25	.25-.75	0	-	< .001*	.56
Passive response						
Instrumental	.50	.25-.75	.25	0-.25	< .001*	.60
Interpersonal	.75	.25-.75.	.25	.25-.50	.009*	.38

*Note.* MD=Median; IQR=interquartile range; ES= effect size;  $r < 0.3$  small,  $r = 0.3-0.5$  medium,  $r > 0.5$  large: \* significant at Bonferroni adjusted alpha level of .008

The second set of analysis indicated that the two groups did not differ significantly in their self-efficacy to enact an assertive response ( $U(46) = 219$ ,  $z = -.78$ ,  $p = .44$ ). Children with RAD expressed greater self-efficacy to enact both aggressive ( $U(46) = 89.5$ ,  $z = -3.7$ ,  $p < .001$ ) and passive responses ( $U(46) = 140$ ,  $z = -2.58$ ,  $p < .02$ ) to peer disputes, compared to the comparison group. The final set of analysis detected no significant group differences in the preference for either an instrumental goal ( $U(46) = 106$ ,  $z = -1.65$ ,  $p = .09$ ) or an interpersonal goal ( $U(46) = 185$ ,  $z = 1.8$ ,  $p = .07$ ). The



median scores, interquartile ranges and effect sizes for self-efficacy and choice of goals are presented in Table 4.

Table 4

*Group Differences in Self-Efficacy and Goal Preference*

	<u>RAD (N=23)</u>		<u>Comparison (N=23)</u>		P value	ES (r)
	MD	IQR	MD	IQR		
<u>Self-efficacy</u>						
Assertive	2.87	2.31-3.50	2.75	2.25-3.25	.44	.11
Aggressive	3.00	2.75-3.50	1.50	1.50-2.33	< .001*	.54
Passive	3.00	2.68-3.54	2.50	2-2.75	.01*	.38
<u>Goal preference</u>						
Instrumental	1.00	.75-3	1.00	0-1	.09	.24
Interpersonal	3.00	1-3	3.00	3-4	.07	.26

*Note.* MD=Median; IQR=interquartile range; ES=effect sizes;  $r < 0.3$  small,  $r = 0.3-0.5$  medium,  $r > 0.5$  large: \* significant at bonferroni adjusted alpha level of .017

Within RAD group analysis

The second hypothesis of the investigation was that the SIP patterns of RAD cases would be associated with parent reported behavioural difficulties as assessed by the SDQ total difficulties and four difficulties subscales and the RPQ total score. This exploratory analysis was performed with the RAD group only as this was the group of interest. Spearman's *rho* correlation, a non-parametric test, explored the association between the SIP variables and the behavioural outcomes. The Spearman's *rho* correlations are displayed in Table 5.

Table 5

*Spearman's rho Correlations between Processing and Behavioural Outcomes for the RAD Group (N=23)*

	<u>Behavioural Difficulties</u>					RPQ
	TD	Conduct	Peer	Emotional	Hyperactivity	
<u>Processing measures</u>						
Encoding	.49**	.24	.33	.60***	.01	.14
Intent	-.12	-.30	-.07	.08	-.01	.01
Response Access	-.26	-.20	-.18	-.13	-.38*	-.03
PE Assertive Response	.04	.23	-.02	-.33	.38*	-.06
Self-efficacy	.11	.01	.02	.04	.10	.10
PE Aggressive Response	.01	-.08	.01	-.01	.19	-.01
Self-efficacy	-.02	-.02	-.08	-.13	.01	.07
PE Passive Response	-.18	-.14	-.14	-.23	.05	-.13
Self-efficacy	.25	.13	.16	.16	.26	.25
Instrumental goal	-.16	-.10	-.25	.20	-.28	.30
Interpersonal goal	.21	-.06	.28	-.07	.25	-.37

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ; TD= SDQ total difficulties PE=positive evaluation

As can be seen from Table 5, there appeared to be strong positive associations between encoding and both total difficulties ( $rho=.49$ ,  $p < .01$ ) and emotional difficulties ( $rho=.60$ ,  $p < .001$ ) with greater errors in encoding associated with more overall behavioural difficulties and more emotional problems. There was also a strong positive association between the positive evaluation of an assertive response and

hyperactivity ( $rho=.38$ ,  $p < .05$ ) with a greater positive evaluation of assertive responses in resolving peer disputes associated with increased hyperactivity. The analysis also revealed a strong negative association between accessing an aggressive response and hyperactivity ( $rho=-.38$ ,  $p < .05$ ) with an increased tendency to access aggressive responses associated with less hyperactivity. However, there were no strong associations between SIP variables and RPQ scores.

## Discussion

### Summary of main findings

The present study provides evidence for the first hypothesis that children with RAD display less competent SIP than children without RAD. The results also provide partial support for the second hypothesis that for the RAD group, errors in SIP would be associated with behavioural difficulties. The aspects of SIP most strongly associated with behavioural outcomes were encoding, the accessing of aggressive responses and the positive evaluation of an assertive response to peer disputes. Contrary to expectations, the remaining SIP components were not related to behavioural difficulties and there was no association between the SIP variables and attachment disorder specific behavioural problems as assessed by the RPQ.

### Previous literature

The inaccurate SIP of children with RAD in the current investigation demonstrate some similarities with those of related clinical samples of physically abused children (Dodge et al., 1990; 1995), neglected children (Keil & Price, 2008; Tiesl & Cicchetti, 2007) and children who have experienced multiple forms of maltreatment (Smith & Walden, 1999). However, these studies have generally only yielded small to medium effect sizes in SIP performance between maltreated and non- maltreated peers, despite

generally employing large sample sizes. In contrast, the current investigation with a relatively modest sample size, observed between-group effect sizes in SIP in the medium to large range.

One explanation is that children with RAD, whose early environment did not facilitate the development of a discriminating attachment, have a more unhealthy internal working model of relationships as reflected in their SIP capabilities, compared to other maltreated children, who may not have developed RAD. Supporting this proposition is the finding that the frequency and severity of abuse in maltreated children has been related to a greater tendency to attribute hostile intent to a variety of relationship figures (Price & Glad, 2003). Additionally, a positive association between the duration of deprivation and attachment disturbance behaviour has been reported in a sample of children adopted into the United Kingdom from Romania (O' Connor et al., 2003).

Interestingly, children with RAD in the current investigation were more likely than comparison children to endorse both passive and aggressive solutions in relation to peer disputes. These seemingly contradictory strategies are reminiscent of previous research exploring the narrative representations of children with RAD (Heller et al., 2006; Minnis et al., 2009) and may have been initially adaptive in attempting to elicit care giving responses in the absence of a discriminating attachment figure. This pattern of responses can be differentiated from children with a disorganised attachment pattern. Disorganised children will often demonstrate conflicted behaviours such as simultaneously approaching and avoiding a caregiver, reflecting the attachment object being both a cause of distress and the only potential source of

comfort from the distress (Hesse & Main, 2006). However, children in the current investigation did not endorse (aggressive) approach and avoidance strategies to escape distress as both responses were positively evaluated in terms of achieving both instrumental and interpersonal goals. More generally, there is currently no evidence demonstrating an association between attachment disorganisation and social information processing in middle childhood.

It is noteworthy that, despite the strong between group differences in SIP processing, a greater number of associations between SIP variables and behavioural difficulties were not observed for the RAD group and that there was no significant associations between SIP and attachment specific behavioural markers. There are several possible explanations for this. Firstly, previous studies (Dodge et al., 1990; 1995; Price & Landsverk, 1999) used large samples and as such the current study may have been underpowered to detect additional strong associations that may have existed. Secondly, Lansford et al. (2006) found that the tendency to attribute hostile intent to peers was protective of subsequently developing internalising difficulties in a sample of physically abused children. The authors speculate that for physically abused children, attributing hostile intent to others in what is a truly hostile environment results in less self-blame and thereby reduces internalising difficulties. This finding suggests that the relationship between SIP and psychosocial outcomes is complex. It is interesting that in the present study, the largest between group difference on SIP performance was for hostile intent, with an effect size of 0.64, but this was not associated with overall behavioural difficulties or emotional problems, both of which were elevated for the RAD group.

Additionally, given that previous studies of maltreated children, similar to the current investigation, detected only modest associations between SIP variables and behavioural outcomes (Dodge et al., 1990; 1995; Price & Landsverk, 1999), it is possible that some other variable influences the relationship between SIP and psychosocial functioning in children with RAD. Schore (1997) argues that affect dysregulation results from a failure of co-regulation of affect between caregiver and infant and this impacts on the capacity for higher order self-regulation capacities, including the development of a healthy internal working model of relationships.

It is noteworthy that emotions and cognition are assumed to interact in the SIP paradigm (Crick & Dodge, 1994). Emotional arousal may serve as an internal cue that must be encoded, while emotions (e.g. anger or anxiety) may influence the child's interpretation, and the accessing and evaluation of various responses to peer disputes (Crick & Dodge, 1994). Similarly, SIP may impact directly on emotional arousal, for example, experiencing a feeling of safety and low emotional arousal after executing an avoidant response to peer provocation. The strong effect for the association between emotional difficulties and encoding in the current investigation is suggestive of a possible role for emotional regulation in the association between SIP and the behavioural difficulties associated with RAD. However, it should be noted that the internal consistency of the encoding instrument in the current investigation was low and only half of the 24 vignettes in the inventory were used, indicating that caution should be exercised when interpreting this finding.

### Strengths

A strength of the current study is that the RAD and control group were matched in terms of age and gender which reduces the possibility that these variables were

contributing to between group differences on SIP operations. Another strength is that the four steps of the SIP model (Crick & Dodge, 1994) were explored because many studies of SIP in maltreated children focus on only one or two of the steps (e.g., Price & Landsverk, 1999; Price & Glad, 2003). However, the assessment of SIP operations was based solely on children's responses to hypothetical situations and it is unclear whether children's responses generalise to social situations in the real world.

#### Limitations and directions for future research

Given the required use of non-parametric tests, it was not possible to control for the effects of intellectual functioning and verbal comprehension in SIP group differences. Nevertheless, correlational analysis suggested only a weak association between these variables and the stages of SIP. However, the strong associations between verbal comprehension and IQ and behavioural difficulties suggest the observed associations between SIP and behavioural outcomes should be interpreted with caution. The methodology of future research would benefit from assessing SIP operations at multiple time points in a longitudinal design. Multiple correlations in the context of small sample size inflated the risk of a type 1 error. Therefore, replication of the study with a larger sample size is required to add weight to and to extend the current findings.

The method of recruiting both the RAD and comparison group has implications for the generalizability of the research. The majority of the RAD cases in the present study was attending for mental health input at the time of referral, and therefore, may not be comparable to children with RAD who had not come to the attention of mental health services. For the comparison group, it is possible that higher functioning

families opted to participate in the study, with lower functioning families declining to participate and this may have enhanced group differences. Experimenter bias cannot be fully discounted in the investigation as the assessor was not blind to the RAD status of the children or to the goals of the investigation. There is also the possibility that children with RAD endorsed more positive items, particularly for the aggressive and passive responses on response evaluation, as a strategy to gain the affection of or to ingratiate themselves to the assessor, rather than reflecting their actual behaviour in peer situations.

The inclusion of children with a wide age range in the current study, due to anticipated challenges in recruitment, may have masked important age or developmental differences in SIP operations. Given the modest sample size, it was not appropriate to conduct separate analysis exploring SIP differences in younger and older children. More generally, the modest sample size used may have meant the study was underpowered to detect additional or stronger associations between SIP and the behavioural outcomes for the RAD group.

Future research could focus on the association between SIP patterns and the disinhibited and inhibited subtypes of RAD, the association between attachment representations and SIP operations in RAD and the possible association between affect regulation, SIP, and the behavioural difficulties in children with RAD.

### Conclusions

The findings suggest that children with RAD are particularly vulnerable to misinterpreting social situations and it is interesting that RAD is increasingly



conceptualised as a syndrome of social impairment (e.g., Green, 2003). The results have clinical and theoretical implications. However, as an exploratory study, these findings require to be replicated and extended to address the methodological and theoretical caveats raised.

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## **Chapter 3**

### **Advanced Clinical Practice I**

#### **Reflective Critical Account**

**The Therapeutic Shift from Content to Process Issues with a Client with a Personality Disorder in an Adult Mental Health Setting: A Reflective Account.**

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*Submitted in partial fulfilment of the requirements for the degree of Doctorate in  
Clinical Psychology (D. Clin. Psy)*



## Abstract

In this reflective account, I apply the Rolfe, Freshwater, and Jasper (2001) reflective model to my experience of a difficult session with a client with a personality disorder in a secondary care setting. Using the model, I explored my thoughts and feelings during the session toward the client who continuously diverted from the agenda and session tasks. I then explored the session using theory, knowledge, and an experiential method to reframe the situation. I next examine how the learning could be applied to the client and my wider clinical work. The key learning point in the account concerns the need to be aware of process issues in therapy and to incorporate relational issues into interventions, when appropriate. I seek to frame these experiences in the context of life-long learning and continuing professional development.

## **Chapter 4**

### **Advanced Clinical Practice II**

#### **Reflective Critical Account**

**Team communication and service functioning: A reflective account on the role of the Clinical Psychologist in developing and training in case and service level formulations.**

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## Abstract

In this reflective account, I explore the association between ineffective team communication about service-users in an adolescent in-patient unit using the Atkins and Murphy (1994) model of reflective practice. I draw on wide number of sources to inform the process including, my thoughts and feelings triggered by ineffective multi-disciplinary communication, previous experience and learning, observation, previous research, and theory. I explore and evaluate the learning generated through the reflective process in the context of the National Occupational Standards (British Psychological Society, 2002) generic key roles 5 and 6 relating to the training in the applications of psychology and the provision of psychological resources respectively. I then assess how this learning could be applied to assist colleagues and the wider service in improving team communication and thereby reducing organizational stress and improving service-user outcomes. I identified the key contributions of the Clinical Psychologist as assisting in the development of both case level and organizational level formulations. The learning and experiences discussed are presented as a consolidation and extension of my professional growth during clinical training and as a signpost to continuing professional development.

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## **Appendix 1.1 - Author Guidelines for Submitting to *Child Maltreatment***

Guidelines for authors submitting to *Child Maltreatment* downloaded on 4<sup>th</sup> June 2011.

[http://www.uk.sagepub.com/journalsProdDesc.nav?ct\\_p=manuscriptSubmission&prodId=Journal200758&crossRegion=eur](http://www.uk.sagepub.com/journalsProdDesc.nav?ct_p=manuscriptSubmission&prodId=Journal200758&crossRegion=eur)

*Child Maltreatment* (CM) is the official journal of the American Professional Society on the Abuse of Children (APSAC) and primarily publishes work on samples from North America. CM welcomes manuscripts addressing timely and important topics in practice, policy, and theory, including empirical research articles, systematic review articles, and program evaluations that illustrate theoretical issues or new phenomena.

Submissions should be prepared according to the guidelines in the *Publication Manual of the American Psychological Association* (6th edition).

Regular articles should be no more than 30 double-spaced pages, inclusive of tables, figures, and references. Brief reports will also be accepted, limited to no more than 12 double-spaced pages including tables, figures, and references. Reviews of the literature should be no more than 50 double-spaced pages. Include an abstract of approximately 150 words. The authors' name and affiliation must be listed on a separate Title Page for anonymous review. Submission to *Child Maltreatment* implies that the manuscript has not been published elsewhere, and is not under consideration by any other journal; a statement to this effect should be included with the submissions.

## Appendix 1.2- Rating of Methodological Quality Proforma

### Methodological Quality Proforma

#### Methodology

1. Does the study have explicit aims/clearly stated hypotheses?

Yes	2
Can't tell/ poorly addressed	1
No	0

2. Does the study detail the procedures used/is the study replicable given the information stated?

Yes	2
Can't tell/ poorly addressed	1
No	0

3. Does the study have a comparison group of non-maltreated children?

Yes	2
No	0

4. Are the two groups being studied selected from source populations that are comparable in all respects other than maltreatment status?

Yes	2
Can't tell/ poorly addressed	1
No	0

5. Any conflict of interest or independence of researchers should be clearly stated/  
Does the study state source of funding?

Yes	2
No	0

6. Have measures being taken at more than one time point? (longitudinal/ prospective study)

Yes	2
Can't tell	1
No	0

7. Were assessors of SIP/ outcome measures blinded to maltreatment status?

Yes	2
Can't tell/ not specified	1

No 0

8. Is the training of the assessors of SIP tasks specified?

Yes 2

No 0

### **Sample**

9. Does the study state the type of maltreatment of the children or clearly define what constitutes maltreatment?

Yes 2

Can't tell/ poorly addressed/state only 1

No 0

10. Does the study indicate how many of the people asked to take part did so?

Yes 2

Can't tell 1

No 0

11. Does the study justify the numbers used? (i.e power calculation)

Yes 2

Can't tell 1

No 0

12. Does the study describe how the sample was identified and state whether this is representative of the population?

Yes 2

How identified only/ Can't tell 1

No 0

13. Does the study state clear selection criteria? (inclusion/exclusion criteria)

Yes 2

Partially addressed (inclusion/exclusion criteria only) 1

No 0

14. Does the study include demographic information for the samples? (minimum age/gender)

Yes 2

Can't tell/partially addressed 1

No 0

15. Did non-respondents differ (within groups, or between groups if applicable) from respondents on any variables other than SIP or psychosocial outcomes?

Yes	0
Can't tell/ not addressed	1
No	2

### **Measures**

16. Has the study used a reliable, valid measure of social information processing instruments?

Yes	2
No	0

17. Has the study used reliable, valid measures of psychosocial outcomes if assessed?

Yes	2
No	0

18. Are the original questionnaires available (appended or reported)

Yes	2
Can't tell/some but not all	1
No	0

### **Results**

19. Has the study included data on any possible confounding variables, for example, intelligence, language difficulties, adoption/home status?

Yes	2
No	0

20. If included, has the study taking the confounding variables into account in analysis?

Yes	2
No	0

21. Has an effect size been reported (reported for measures between groups or association of SIP variables and psychosocial outcomes)

Yes	2
Calculable from raw data	1
No	0

22. Have drop-out/attrition rates being clearly stated?



Yes 2  
 Can't tell/not applicable 1  
 No 0

23. Is the statistical analysis appropriate? (Appropriate methods used?)

Yes 2  
 Can't tell/not applicable 1  
 No 0

24. Does the study include a discussion of generalisability?

Yes 2  
 Can't tell/partly 1  
 No 0

<b>Quality Rating</b> _____%	<b>Classification</b> High	>75%	[ ]
	Moderate	60-74%	[ ]
	Low	50-59%	[ ]
	Poor	<49%	[ ]

**Appendix 1.3- Data extraction protocol**

**Data Extraction Form**

*SIP in Maltreated Children*

**Author (year):**

**Title:**

**Notes**

**First Rater:**

**Second Rater:**

**1. How was maltreatment assessed?**

**2. How were the maltreated sample recruited? Specify the opt-in and drop-out rates if reported.**

**3. Experience/training of assessor of**

**(a) maltreatment**

**(b) SIP**

**4. Maltreatment type**

Specified

Not specified

**5. How is maltreatment defined? What type of maltreatment?**

**6. How was maltreatment assessed?**

**7. Was a comparison group included? Specify the opt-in and drop -out rates if reported.**

Yes

No

**8 (a) N maltreatment group ? \_\_\_\_\_**

**Gender**

Male

Female

Both

**Age**

Range

Mean (SD)

Not specified

**Ethnicity**

Provide details if there is more than one maltreatment group

**(b) N control/comparison group (if applicable)? \_\_\_\_\_**

**Gender**

Male

Female

Both

**Age**

Range

Mean (SD)

Not specified

**Ethnicity**

Provide details if there is more than one comparison group.

**9. What additional demographic information is reported for the maltreatment and comparison group if applicable?**

**10. How were the comparison group recruited?**

**11. Were there any significant demographic differences between the maltreatment and comparison groups?**

**12. Specify the study design**

**13.**

**(a) Specify the stages of SIP investigated**

---

---

**(b) SIP measures used?**

---

**(c) How are the psychometric properties of SIP measures reported?**

**14 (a) Is the relationship between SIP and psychosocial outcome assessed?**

Yes

No

**(b) If yes, specify psychosocial domain(s)**

---

**(c) Instrument (s) / method (s) used? \_\_\_\_\_**

**(d) How are the psychometric properties of psychosocial outcome measures reported?**

**15. Where did data collection take place?**

**16. What confounding variables, if any, are controlled for in the study?**

**17. Is the assessor of the children blind to maltreatment status?**

**18. Specify if effect sizes are reported or calculable from the raw data. Provide details.**



## **Structured Abstract**

**Background** Reactive attachment Disorder (RAD) is conceptualised as arising from pathogenic care or neglect in early childhood and children with RAD exhibit a unique array of behavioural and social difficulties. There is a paucity of research on the cognitive underpinnings of RAD that may mediate the relationship between early neglect or abuse and subsequent behavioural difficulties. One model of social information processing (SIP) suggests specific cognitive processes as mechanisms by which children's past experiences are carried forward into their current social behavioural patterns. The model proposes four steps that are triggered when an individual encounters any social situation (1) encoding of situational cues, (2) representation and interpretation of those cues, (3) mental search for possible responses to the situation and (4) the selection of a response. **Aims** The study aims to compare the social information processing styles of children aged 6-12 years with and without RAD while controlling for IQ and verbal ability and will also explore the impact of SIP variables on parent-reported child behavioural difficulties. **Methods** Each child will complete an inventory assessing SIP steps, general intelligence and verbal ability. Parents or carers will complete a demographics questionnaire and measures on child behavioural difficulties. Between groups matched case control and correlation designs will be used to explore the results **Applications** The results of the study will enhance understanding of the social cognitive processing deficits of children with RAD and may contribute to the development of effective treatment for this clinical group.

## **Background**

Both DSM-IV TR (American Psychiatric Association, 2000) and ICD-10 (World Health Organisation, 1992) recognise two patterns of Reactive Attachment Disorder (RAD). The first, inhibited RAD, is associated with abuse and neglect, in particular with a caregiver style that is rejecting or punitive. It is characterised by withdrawal from others, avoidance of comforting gestures, self-soothing behaviours, vigilance, aggression, and awkwardness in social situations (Haugaard & Hazan, 2004). The second disorder of attachment, disinhibited RAD, is associated with institutional upbringing or multi-placement experiences. Typical behaviours that typify the disinhibited type include over-sociability, the seeking of comfort and affection non-selectively, even from unknown adults, and failure to exhibit expected reticence with unfamiliar adults, exaggeration of needs for assistance, chronic anxious appearance and inappropriate childishness (Haugaard & Hazan, 2004). Other maladaptive behaviours associated with RAD more generally include stealing, lying, refusing to make eye contact, poor impulse control and hyperactivity (Kirschner, 1992; Reber, 1996; Parker & Forrest, 1993). Both types of attachment disorder may be precursors of conduct disorder and later personality disorders (Zeanah, 1996)

Many theories articulate an association between experiences of abuse or neglect in early life and the development of chronic behavioural difficulties, for example, social learning theory (Bandura, 1973), frustration-aggression theory (Berkowitz, 1989) and attachment theory (Crittendon & Ainsworth, 1989). These hypothesised mental mechanisms are integrated in one model of social information processing (Crick & Dodge, 1994) which suggests specific cognitive processes as mechanisms by which

children's past experiences are carried forward into their current social behavioural patterns. A child whose early social environment has in some way failed to provide for his/her basic physical and psychosocial needs is likely to develop knowledge structures (schemas or internal working models) that reflect negative evaluations of themselves and others, as well as negative expectations for the future. One role of these knowledge structures is to guide and organise the way in which social information is processed in specific social situations. In turn, information-processing is a mechanism that guides social behaviour. The processing of social information involves four steps that are triggered when an individual encounters a social situation (1) encoding of situational cues, in which attention plays a role (2) representation and interpretation of those cues, (3) mental search for possible responses to the situation and (4) the selection of a response (Crick & Dodge, 1994).

The social information processing styles of children with RAD has not been explicitly studied to date but evidence from research investigating the association between attachment and SIP patterns (Ziv, Openheim & Sagi-Schwartz, 2004) and from RAD related groups for example, maltreated children in foster care (Pears & Fisher, 2005; Price & Landsverk, 1999), abused children (Dodge, Petit, Bates & Valente, 1995) and children displaying aggression (e.g Dodge & Newman, 1981) suggest that RAD is likely to be associated with significant SIP deficits.

Firstly, the link between mother-child attachment and social information processing in middle childhood has been examined (Ziv et al., 2004). Findings revealed that with regard to both peer group relationships and mother-child relationships, secure children demonstrated more competent social information processing than insecure-ambivalent



children in the fourth stage of SIP- response evaluation. Secure children were able to evaluate more positive outcomes for positive behaviours with peers than insecurely attached children. This study suggests that early attachment experiences may influence the development of later social information processing strategies.

Secondly, evidence of SIP patterns in maltreated children is informative in the consideration of hypothesised SIP styles in RAD. In a sample of 124 maltreated children aged 5-10 who had been placed in foster care, Price and Landsverk (1999) found that unbiased and competent social information processing was related to social adaptation while biased and incompetent processing was associated with behavioural problems. Specifically, maltreated children who made a higher proportion of non-hostile attributions and who generated a higher proportion of competent social problem solving strategies were judged six months later by their caregivers as more socially competent than were maltreated children who evidenced lower proportions of non-hostile attributions and competent problem solving strategies. While the maltreated children in this study were likely to have experienced some difficulty with attachment due to early experience of maltreatment and a proportion may have actually developed RAD before being placed into foster care, this was not directly assessed in the study. However, a prevalence of RAD of 38-40% among maltreated children in foster care (Zeanah et al, 2004) suggests that the development of RAD is not an inevitable consequence of maltreatment and that children with RAD, an understudied subgroup of maltreated children in foster care, may demonstrate unique SIP styles.

The third area of research relevant to RAD involves the relationship between early childhood abuse and SIP patterns. For example, Dodge et al. (1995) found support for the hypothesis that early physical abuse was associated with later externalising behaviour and that the relationship was mediated by the development of biased social information processing patterns. Specifically, abuse was associated with encoding errors, hostile attributional biases, accessing of aggressive responses, and positive evaluation of aggression.

The majority of studies investigating SIP have been conducted with aggressive children but given the known difficulties, including aggression, that children with RAD experience, there is likely to be at least some overlap in the SIP processing styles of children with RAD and those with aggression. Aggressive children have been found to display deficits in each of the four SIP stages. For example, aggressive boys have been found to encode fewer social cues than non-aggressive boys (Dodge & Newman, 1981), demonstrate biases in attributing hostile intentions to peers in ambiguous situations (Dodge, 1980; Lochman, 1987) and generate fewer possible behavioural responses from memory in response to ambiguous provocation situations (Richard & Dodge, 1982). Aggressive children also evaluate an aggressive response as being more acceptable to enact (Delunty, 1983) and finally express more confidence to enact this response than non-aggressive children (Perry, Perry & Rasmussen, 1986).

While, the literature has documented numerous maladaptive behaviours that children with RAD exhibit, no empirical research has yet been conducted to assess its cognitive underpinnings and its association with maladaptive behaviour. To the

investigators knowledge, this will be the first study to examine social information processing styles in children with RAD. Evidence from attachment studies, and RAD related groups, for example, maltreated, abused and aggressive children suggest that social information processing in children with RAD is likely to be impaired. A greater understanding of the social cognitive underpinning of RAD may be useful in developing effective psychological intervention options for this diagnostic group.

One potential confounding variable that may influence group differences in SIP in the proposed study is the relation between general verbal ability and the ability to participate effectively in social-cognitive tasks. Children with behavioural difficulties have been shown to perform more poorly than matched comparison children on any task that is administered orally or calls for a verbal response (e.g. Lynam, Moffitt & Stouthamer-Loeber, 1993). Another potential confounding variable is general intelligence which has been linked to SIP-related constructs of emotion understanding and theory of mind in previous research (Carlson, Moses, & Breton, 2002; Jenkins & Astington, 1996). Accordingly, both general intelligence and verbal ability will be controlled for in the current study.

## **Aims**

This study aims to determine whether any or each of the four social information processing steps (encoding, interpretation, response generation, response selection) distinguish children with RAD from a comparison group of children without RAD when controlling for gender, age, verbal ability and general intelligence. In addition, it

will also determine the relationship between social information processing patterns and parent reported behavioural problems.

## **Hypothesis**

Controlling for age, verbal ability and general intelligence, this study will test the following hypothesis:

1. Compared to children not diagnosed with RAD, children with RAD will encode social cues less accurately, make more hostile attributions of ambiguous social situations and behaviours, access more aggressive responses to social dilemmas and evaluate aggressive responses more positively
2. The four SIP steps will be predictive of parent reported behavioural problems.

## **Plan of Investigation**

### **Participants and recruitment**

Participants will be aged between 6 and 12 years. The children in the experimental group will be recruited from a separate study being conducted by the Child and Adolescent Psychiatry Research Team at the Royal Hospital for Sick Children, Yorkhill NHS Trust and will have previously received a diagnosis of RAD from a Psychiatrist. The Research Team have estimated that a minimum of forty children with RAD could be recruited from this study for potential inclusion in the current investigation. Contacting families through Adoption UK and Child and Adolescent

Mental Health Services in NHS Greater Glasgow and Clyde and Forth Valley will make up any shortfall in experimental participants. Children with RAD will not be invited to participate in the study if there is current maltreatment, as judged by clinicians who know the family. The Research Team are currently liaising with several Glasgow Schools for a large scale research project and it is envisaged that the comparison group in the current study will be recruited from one or several of these schools. The school principals will be provided with an information sheet on the proposed research and their consent will be required for the school to participate in the study.

A member of the Child and Adolescent Psychiatry Research Team will approach families participating in a related investigation in which the child has already been diagnosed with RAD and invite them to participate in the proposed study. An information sheet on the purpose and method of the study and an informed consent form will be provided for both parent and child. Those families giving written informed consent will be contacted by the Principal Investigator to arrange a convenient time to attend for data collection. Participating families will be informed both verbally and on the informed consent sheet that they may withdraw from the study at any time without giving a reason and this will in no way impact on their current or future health care treatment. Following each testing session with the child, the researcher will debrief the parent/guardian on any issues that might have arisen during testing and provide the opportunity for both adult and child to ask any questions they might have. Families will be made aware that the researcher can provide them with a copy of the research results upon study completion.

### **Inclusion and exclusion criteria**

The children in the experimental and comparison groups will be matched on age and gender. A previous diagnosis of a moderate or severe learning difficulties or significant impairments in verbal ability/communication will be exclusionary criteria for both groups. For the experimental group, the Psychiatrist from the Research Team making the RAD diagnosis will have access to this information or will rely on clinical judgement prior to asking the families to participate in this study. For the comparison group, the school principal will be asked to only approach families to participate in the study, if to the schools knowledge, there is no prior diagnosis or indication of significant language impairment or a learning disability. A significantly lower than expected verbal comprehension or a general intelligence level, indicative of a moderate to severe learning disability, will be apparent following administration of the Wechsler Intelligence Scale for Children –fourth edition (WISC-IV) sub-tests in which case the child will be excluded from data analysis. The indication of a mild learning disability will not be an exclusion criterion for either group if the developmental age of the child, based on WISC-IV norms, is between 6 and 12 years of age.

### **Measures**

For each child, the same measures will be administered

- WISC (Four sub-tests)
- Home interview with Child
- Things that Happen to me

- Video-stimuli

In order to ensure, there is no order effect, these tests will be administered in a random order.

For each child, the parent or carer will complete

- A demographics questionnaire including information on child and parent's age, number of siblings, parent's occupation and marital status and whether the child is adopted and if so the age of the child when adopted. This information will be used to compare the profiles of the children in the RAD and comparison groups.
- Strengths and Difficulties Questionnaire (SDQ)
- Relationship Problems Questionnaire (RPQ)

#### Intelligence and Verbal Ability.

Consideration was given to trying to control for intelligence and verbal ability. However, due to the age of the children to be tested it was decided that the maximum testing time for the children should be one hour and a half. This meant that only a short measure of intelligence and verbal ability could be administered. It was decided the vocabulary and block design subtests of the Wechsler Intelligence Scale for Children- Forth Edition (Wechsler, 2003) would provide an approximate estimate of general intelligence, while the vocabulary, similarities, and information subtests will yield a verbal comprehension index score. In total, the four WISC-IV subscales, should take approximately twenty minutes to complete.

### RAD Symptoms

The Relationship Problems Questionnaire (RPQ) (Minnis et al., 2007) is a ten item questionnaire assessing attachment disorder behaviour of the inhibited and disinhibited sub-types of RAD AND will be completed by both the child's parent or carer and teacher. Each item has four possible responses ('exactly like my child', 'like my child', 'a bit like my child' and 'not at all like my child'), scored 3, 2, 1 and 0 respectively. The total RPQ scores range from 0-54. The RPQ can discriminate between behaviours suggestive of RAD and conduct problems, hyperactivity and emotional difficulties and has an internal consistency of 0.85 (Minnis et al., 2007). The RPQ takes approximately five minutes to complete.

### Behavioural Difficulties

The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) is a 25 item inventory (SDQ; Goodman, 1997, 2001) containing descriptions of children's positive and negative behaviours and will be completed by the child's parent or carer. Three-point response formats are used for each item and are scored from 0 to 2. The instrument yields scores on 5 subscales: Hyperactivity, emotional symptoms, conduct problems, peer problems and prosocial behaviour. Subscales scores range from 0 to 10 and are obtained by summing scores for each of the 5 items. Scores from the four difficulties subscales are combined to yield a total difficulties score, which ranges from 0 to 40. The psychometric properties of the SDQ are well established with a high internal consistency and test-retest reliability (Goodman, 2001). The measure also has strong criterion validity for predicting psychological disorders (Goodman, 2001). The SDQ takes approximately ten minutes to complete.



### Encoding and Cue Utilisation

Children will be presented with twelve 30 second DVD vignettes (Dodge, Bates, & Pettit, 1990: Dodge, Pettit, Bates & Valente, 1995) involving child actors in peer provocation and peer rebuff situations. Children will be asked to recall the vignette following its presentation and the child's ability to attend to appropriate and relevant social cues will be recorded. Estimated completion time for this instrument is twenty minutes.

### Interpretation and Response Access

The Home Interview with Child (Dodge, Bates, & Pettit, 1990: Dodge et al., 1995) was designed to assess children's intent attributions for peer problems and generation of behavioural responses. The measure consists of eight age-appropriate pictorial stimuli and associated narrative depicting four provocation situations and four group entry rebuff situations. This protocol takes approximately twenty five minutes to complete.

### Response Evaluation

Things That Happen To Me (TTHTM) (Dodge et al., 1990: Dodge et al., 1995) contains eight verbally presented social situations (4 situations of peer conflict and four situations of peer provocation). The child is asked to imagine that he or she is present in each scenario and wants to achieve a goal that another child is blocking. For each story the interviewer offers the child an assertive, aggressive, or withdrawal (passive) solution. The child will evaluate these solutions in terms of their effectiveness in solving the situation (response evaluation) and how easy each solution would be to enact (self-efficacy). The interviewer will also ask the child to

indicate his/her preference for an instrumental or a social goal conclusion. Administration time for this instrument is approximately twenty five minutes.

### Design

Participants from the experimental and control group will be matched to within twelve months of age and by gender during recruitment and a between groups matched case control design will be used in order to answer the first hypothesis, whether children with RAD will display less competent SIP than the comparison group. The independent variable will be group allocation while the dependent variables will be the social information processing components. In order to answer the second hypothesis, whether SIP variables are predictive of child behavioural difficulties, a correlation design will be used. The dependent variable will be parent-reported child behavioural difficulties, while the independent variables will be the four steps of the SIP model, intelligence and verbal ability.

### Procedures

The administration of the child testing materials will take approximately ninety minutes. A short break of ten minutes will be offered to each child after forty-five minutes. Additional breaks will be if offered if deemed necessary by the interviewer or requested by the child. The administration of the parent completed measures will be completed by the parents or carers in the waiting room while the interviewer is administering the child related material.

### Power calculation

There are unfortunately no studies that have investigated social information processing in RAD. One study, exploring the association between social information

processing and aggression (Orobio de Castro et al., 2005) compared a sample of aggressive boys (N=54) with a non-aggressive comparison group (N=30) aged 7-13. Although the study developed their own instruments to assess SIP variables, they were similar to the inventory outlined in the current proposal. The study used ANCOVA to explore group differences (controlling for verbal ability) and mean effect sizes of .63 and .68 were calculated for attribution of hostile intent and aggressive response generation respectively.

In order to calculate sample size for the proposed study, a Power Table for ANCOVA (Barker Bausell & Li, 2002, p.131-132) was consulted. It was calculated that 35 subjects per group would be required to test the first hypothesis using ANCOVA for a power of 0.8, an alpha of 0.5, and an effect size of between 0.60 and 0.65 assuming a correlation of 0.4 between the covariate (s) and the dependent variables. To detect an effect size of 0.55, 45 participants per group would be required while an effect size of 0.70 would require 30 participants per group.

The power table also indicated that with a correlation of 0.6 between the covariate (s) and the dependent variables, 25-30 participants per group would be required to yield an effect size of between 0.6 and 0.65 for a power of .8 and an alpha of 0.05. The proposal will adapt a conservative approach, based on a correlation of 0.4 between the covariate (s) and the dependent variables, and therefore aim to include 35 participants in each group yielding a total sample of 70.

#### Settings and equipment

The setting for the study is Caledonia House, Royal Hospital for Sick Children, Yorkhill NHS Trust. There is the facility to book clinic rooms for the purposes of data

collection. The equipment will mainly consist of the measures which will be purchased from the authors where applicable.

### Data Analysis

All data will be anonymous, by assigning participant numbers, before it is entered onto the computer database. Data will be analysed using SPSS version 13 and data input and analysis will be conducted on secure NHS computers. The data will be treated in a confidential manner at all times and completed measures will be stored in a secure filing cabinet at Caledonia House.

Prior to formal data analysis all data will be checked to ensure that they meet the appropriate criteria for parametric difference tests and hierarchical multiple regression. Analysis of the first hypothesis, whether children with RAD will process social information less competently than controls, will be carried out using ANCOVA controlling for, age, verbal ability and general intelligence. Analysis of the second hypothesis, whether SIP variables will be predictive of parent reported behavioural problems, will be investigated using multiple regression. Partial correlations will be used in lieu of multiple regression if the test assumptions are violated.

### **Health and Safety Issues**

Researcher safety issues will be kept to a minimum by collecting data in NHS clinics and ensuring that this takes place at a time when other clinicians are in the building. During administration of the child-related material, the child's parent or carer will be nearby in the waiting room so that should the child become distressed, testing will be stopped, and the child will be returned to his or her familiar person.

## **Ethical Issues**

Ethical approval for the study will be obtained from the West of Scotland Research Ethics Committee. Consent forms and participant information sheets will be sent to the parents and carers of all the children who are eligible to participate. There will also be a consent form for the child to sign and they will be provided with a child-friendly information sheet. It is thought that the tests being administered should not result in any distress for the children participating. However, should any distress occur then testing will be immediately stopped and someone familiar to the child will be sought. Patient information and data will be kept strictly confidential at all times. Publications arising from the study will not contain information that could identify participating families.

## **Financial issues**

The testing materials for the SIP variables, the RPQ and the SDQ are available free of charge. The WISC-IV testing kit will be provided by the study's field supervisor and an effort will be made to obtain response booklets from an NHS Greater Glasgow and Clyde service. However, if this is not possible, response booklets will need to be purchased at a cost of £136, meaning the total cost of the study may be just under £290.

## **Timetable**

Having received ethical approval for the study, it is hoped that data collection will take place over a five month period from September 2010-March 2011. Following this, data analysis and write up will take place

## **Practical Applications**

The study will enhance understanding of the social cognitive processing abilities of children with RAD which may inform intervention options.

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*Only those not included in MRP paper (Chapter 2)*

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## Appendix 2.2 -Guidelines for submission to Clinical Child Psychology and Psychiatry



### Manuscript Submission Guidelines

#### Clinical Child Psychology and Psychiatry



1. **Peer review policy**
2. **Article types**
3. **How to submit your manuscript**
4. **Journal contributor's publishing agreement**
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    - 9.4.2 **Corresponding author contact details**
    - 9.4.3 **Guidelines for submitting artwork, figures and other graphics**
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    - 9.4.5 **English language editing services**
10. **After acceptance**
  - 10.1 **Proofs**
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  - 10.3 **SAGE production**
  - 10.4 **OnlineFirst publication**
11. **Further information**

**Clinical Child Psychology and Psychiatry** is a peer reviewed journal that brings together clinically oriented work of the highest distinction from an international and multidisciplinary perspective, offering comprehensive coverage of clinical and treatment issues across the range of treatment modalities.

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The Editor will screen manuscripts for their overall fit with the aims and scope of the journal. Those that fit will be further reviewed by two or more independent reviewers. Papers will be evaluated by the Editorial Board and refereed in terms of merit, readability and interest. Unsolicited manuscripts will not be returned to the author.

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#### 2. Article types

**Clinical Child Psychology and Psychiatry** is interested in advancing theory, practice and

clinical research in the realm of child and adolescent psychology and psychiatry and related disciplines. Articles should not usually exceed 7500 words and be clearly organized, with a clear hierarchy of headings and subheadings (3 weights maximum).

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### **3. How to submit your manuscript**

Before submitting your manuscript, please ensure you carefully read and adhere to all the guidelines and instructions to authors provided below. Manuscripts not conforming to these guidelines may be returned.

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## **7. Acknowledgements**

Any acknowledgements should appear first at the end of your article prior to your Declaration of Conflicting Interests (if applicable), any notes and your References.

All contributors who do not meet the criteria for authorship should be listed in an 'Acknowledgements' section. Examples of those who might be acknowledged include a person who provided purely technical help, writing assistance, or a department chair who provided only general support. Authors should disclose whether they had any writing assistance and identify the entity that paid for this assistance.

### **7.1 Funding Acknowledgement**

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## **9. Manuscript style**

### **9.1 File types**

Only electronic files conforming to the journal's guidelines will be accepted. Word DOC is the preferred format for the text and tables of your manuscript. Please also refer to additional guideline on submitting artwork [and supplemental files] below.

### **9.2 Journal Style**

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### **9.3 Reference Style**

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### **9.4. Manuscript Preparation**

The text should be double-spaced throughout and with a minimum of 3cm for left and right hand margins and 5cm at head and foot. Text should be standard 10 or 12 point.

#### **9.4.1 Your Title, Keywords and Abstracts: Helping readers find your article online**

The title, keywords and abstract are key to ensuring readers find your article online through online search engines such as Google. Please refer to the information and guidance on how best to title your article, write your abstract and select your keywords by visiting SAGE's Journal Author Gateway Guidelines on [How to Help Readers Find Your Article Online](#).

#### **9.4.2 Corresponding Author Contact details**

Provide full contact details for the corresponding author including email, mailing address and telephone numbers. Academic affiliations are required for all co-authors. These details should be presented separately to the main text of the article to facilitate anonymous peer review.

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#### **9.4.5 English Language Editing services**

Non-English speaking authors who would like to refine their use of language in their manuscripts might consider using a professional editing service. Visit [English Language Editing Services](#) for further information.

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## **10. After acceptance**

### **10.1 Proofs**

We will email a PDF of the proofs to the corresponding author.

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Any correspondence, queries or additional requests for information on the Manuscript Submission process should be sent to the Editorial Office as follows:

**Prof. Rudi Dallos (r.dallos@plymouth.ac.uk) and Prof. Arlene Vetere (drarlenevetere@hotmail.com).**

**North America: Prof. John Leventhal**, Yale University, Section of Paediatrics, School of Medicine, 333 Cedar Street, PO Box 208064, New Haven, Connecticut. Tel: 001 203 688 2468 Fax: 001 203 785 3932. **Email: John.Leventhal@Yale.Edu**

**Books for review should be sent to: Ramon Karamat Ali,**

C/O Child & Adolescent Mental  
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Torquay, TQ2 7BA, UK  
**Email: r.karamatali@nhs.net**

Appendix 2.3- Demographics inventory

## Demographic Questionnaire

Child's Name: \_\_\_\_\_ Gender: Male  Female

Date of Birth: \_\_\_\_\_

How many siblings does the above child have? \_\_\_\_\_

Please provide the age and gender (if applicable) of each sibling in the space below

Gender	Age

**Parent/Guardian** *(completing this questionnaire).*

Name: \_\_\_\_\_ Age \_\_\_\_\_ Occupation \_\_\_\_\_

**Please indicate the relationship to child**

Parent (biological/adoptive) Foster parent Other Guardian

If other, please specify \_\_\_\_\_

**Second Parent/ Guardian (if applicable)**

Name \_\_\_\_\_ Age \_\_\_\_\_ Occupation \_\_\_\_\_

**Please indicate relationship to the child**

Parent (biological/adoptive) Foster parent Other Guardian

**Please indicate your marital status**

Single      Married      Cohabiting      Divorced/Separated      Widowed

**Is your child adopted?**

Yes       No

**If you answered yes to the above question, what age was your child when they were adopted?**

\_\_\_\_\_

**Has your child ever attended a Child and Adolescent Mental Health Service (CAMHS)?**

Yes       No

**If yes please briefly provide reason for referral and outcome, including diagnosis if applicable.**



## Appendix 2.4 – Relationship Problems Questionnaire

### RPQ

Please tick the statement that best describes your child.

	Exactly like my child	Like my child	A bit Like my child	Not at all like my child	For Office Use Only
Gets too physically close to strangers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 1
Is too cuddly with people s/he doesn't know well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 2
Often asks very personal questions even though s/he does not mean to be rude	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 3
Can be aggressive towards him/herself e.g. using bad language about him/herself, headbanging, cutting etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 4
Has no conscience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 5
Is too friendly with strangers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 6
Sometimes looks frozen with fear, without an obvious reason	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 7
If you approach him/her, he/she often runs away or refuses to be approached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 8
There is a false quality to the affection s/he gives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 9
If you approach him/her, you never know whether s/he will be friendly or unfriendly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 10
Scoring	3	2	1	0	

## **Appendix 2.5-** Information on video stimuli

### **Video stimuli**

Children were presented with 12 prepared video recorded stimuli to assess their encoding of social cues. The video stimuli consisted of vignettes, which were presented to the child consecutively on a portable DVD player. Each vignette was of approximately 30 seconds and involved paid child actors portraying relevant peer social episodes. The child was asked to imagine being the protagonist, who then experiences a negative outcome as the result of the behaviour of a peer (half were peer provocation, such as being hit in the back with a ball, and half were rebuff from entry into a peer group, such as exclusion from a sports team). The intention portrayed by the peer provocateur systematically varied across vignettes as hostile, benign, or ambiguous. Pilot testing with 40 adults indicated that the intention of the peer was unambiguous to more than 75% of adults (Dodge et al., 1995). To assess the ability of children to attend to appropriate and relevant social cues immediately after the presentation of the negative outcome the video stimulus was stopped and the child was asked to recall what had happened in the story. Responses were recorded by the interviewer and scored immediately as 0 (*fully relevant*), 1 (*partially relevant*), or 2 (*fully irrelevant*). Fully relevant responses cited cues in the video stimulus that were central to the interpersonal actions of the actors, whereas fully irrelevant responses cited only cues that were not actually depicted or cues that had no bearing on the interpersonal actions of the actors. Partially relevant responses included citations of both relevant and irrelevant cues or minimal citation of relevant cues. A mean score across the twelve vignettes was calculated with higher scores indicating greater difficulties with encoding.

## Appendix 2.6- Home Interview with Child

Date \_\_\_\_\_ Initials \_\_\_\_\_ ID \_\_\_\_\_

### Home Interview With Child

1. Pretend that you are standing on the playground playing catch with a kid named Todd/Jessica. You throw the ball to Todd/Jessica and he/she catches it. You turn around, and the next thing you realize is that Todd/Jessica has thrown the ball and hit you in the middle of your back. The ball hits you hard, and it hurts a lot.

a) Why do you think Todd/Jessica hit you in the back?

---

---

1                      2  
ACC                      HOS

b) What would you do about Todd/Jessica after he/she hit you?

---

---

0	1	2	3	4	5
don't know	nothing	ask why, ask again	command	adult punish	retaliate

2. Pretend that you see some children playing on the playground. You would really like to play with them, so you go over and ask one of them, a child named Alan/Leah, if you can play. Alan/Leah says no.

a) Why do you think Alan/Leah said no?

---

---

1                      2  
ACC                      HOS

b) What would you do about Alan/Leah after he/she said no?

---

---

0	1	2	3	4	5
don't know	nothing	ask why, ask again	command	adult punish	retaliate

3. Pretend that you are walking to school and you're wearing brand new trainers. You really like your new trainers and this is the first day you have worn them. Suddenly, a child called John/Lisa bumps into you from behind. You stumble into a mud puddle and your new trainers get muddy.

a) Why do you think John/Lisa bumped into you?

---

---

1 ACC      2 HOS

b) What would you do about John/Lisa after he/she bumped into you?

---

---

0 don't know    1 nothing    2 ask why, ask again    3 command    4 adult punish    5 retaliate

4. Pretend that you are a new child in school and you would really like to make friends. At lunch time you see some children you would like to sit with and you go over to their table. You ask if you can sit with them and a child named Carl/Caroline says no.

a) Why do you think Carl/Caroline said no?

---

---

1 ACC      2 HOS

b) What would you do about Carl/Caroline after he/she said no?

---

---

0 don't know    1 nothing    2 ask why, ask again    3 command    4 adult punish    5 retaliate





## **Appendix 2.7-Information on Home Interview with Child (HIWC)**

The Home Interview with Child (HIWC) was designed to assess children's intent attributions for peer problems and tendency to access aggressive responses. The measure consists of eight age-appropriate pictorial stimuli depicting four provocation situations and four group entry rebuff situations. Each vignette is accompanied by a specific narrative describing the situation. All situations are designed so that the intention of the peer (s) is ambiguous. Following the presentation of each story, children will be first asked why they thought the other child did what they did. Children attributional responses will then be coded into one of the following mutually exclusive categories

(a) Non-hostile –the peers intentions were considered an accident (scored 0)

(b) Hostile-the child suggests the peer intended to cause harm to the child (scored 1)

A mean score across the vignettes was recorded (range 0-1) with higher scores indicating greater hostile intent.

The second question the child what he/she would do in the situation (aggressive response generation). The child's response was coded in terms of how aggressive it is. The 0 – 5 scale used to code the question should be thought of as a scale of increasing aggression with 0 being the least aggressive and 5 being the most aggressive. The definitions for these categories are as follows:

0 – Responses such as “I don’t know” and any other responses which do not fit in any of the other scoring categories.

1 – Responses in which the child would not do anything to the provocateur. Ex. “I wouldn’t do anything,” “I’d clean off my shirt,” “I’d play somewhere else.” Any response the child gives that is not directed toward the other child in the story is scored as 1.

2 – Responses in which the child suggests making a comment to the other child or asking a question, but does not ask the other child to do something specific

3 – Responses that request or demand that the other child do something specific are scored as a 3.

4 – This category is for threats and responses where the child suggests seeking out an adult who would punish the provocateur.

5 – Responses that include direct physical or verbal aggressive retaliation toward the other kid

A mean response access score was calculated across the 8 vignettes (range 0-5) with higher scores indicating a greater tendency to access aggressive responses.



**Appendix 2.8- Things That Happen to me**

Date \_\_\_\_\_

Initials \_\_\_\_\_

ID \_\_\_\_\_

Things That Happen To Me

1) Queue Situation: At school one day you are queuing up with your class to go on break. Just as you are getting in the queue a child named Robert/Susan says "I want this place!" and jumps in front of you.

What would happen if you said to Robert/Susan "I will let you skip in front of me now if you let me in front of you next time"?

1. Would Robert/Susan let you skip the queue in front of them next time? OR 2. Would Robert/Susan NOT let You skip the queue in front of them next time?

1. Would Robert/Susan NOT want to be your friend? OR 2. Would Robert/Susan want to be your friend?

a. Have you ever said to a kid "I'll let you skip in front of me this time if I can skip in front of you next time"?

YES (1) NO (2)

b. Saying to other kids that you will let them skip if they let you skip

some time is \_\_\_\_\_ for you.

HARD!                  hard                  easy                  EASY!  
1                                  2                                  3                                  4

What would happen if you pushed Robert/Susan out of queue?

1. Would Robert/Susan like you? OR 2. Would Robert/Susan NOT like you?

1. Would Robert/Susan skip the queue in front of you again? OR 2. Would Robert/Susan go somewhere else in the queue?

a. Have you ever pushed a child out of a queue? YES (1) NO (2)

b. Pushing children out of a queue is \_\_\_\_\_ for you.

HARD!                  hard                  easy                  EASY!  
1                                  2                                  3                                  4

What would happen if you did not say anything to Robert/Susan and just let him/her skip the queue in front of you?

1. Would Robert/Susan NOT skip the queue in front of you other times? OR 2. Would Robert/Susan skip the queues in front of you other times?

1. Would Robert/Susan NOT want to be your friend? OR 2. Would Robert/Susan want to be your friend?

a. Have you ever said nothing to a child and let him/her skip the queue in front of you?

YES (1) NO (2)

b. Letting children skip the queue in front of you is \_\_\_\_\_ for you.

HARD!

1

hard

2

easy

3

EASY!

4

Which of these two things would you like most to have happen in this situation?:

To get your place back in the queue. OR

To have the other child like you.

II) TV Situation: You ask a child you know, named Mark/Tina, to watch cartoons one Saturday morning. After about ten minutes, Mark/Tina changes the channel without asking.

What would happen if you said to Mark/Tina "Please ask before you change the channel."?

1. Would Mark/Tina like you? OR 2. Would Mark/Tina NOT like you?
1. Would Mark/Tina NOT ask before changing the channel? OR 2. Would Mark/Tina ask before changing the channel?

a. Have you ever said to a child "Please ask before you change the channel"?  
YES (1) NO (2)

b. Saying to a child to please ask before changing the channel is \_\_\_\_\_ for you.

HARD!            hard            easy            EASY!  
1                    2                    3                    4

What would happen if you said to Mark/Tina "Stop changing it or I will hit you!"

1. Would Mark/Tina stop changing it? OR 2. Would Mark/Tina NOT stop changing it?

1. Would Mark/Tina NOT want to be your friend? OR 2. Would Mark/Tina want to be your friend?

Have you ever said to a child "Stop changing it or I will hit you!"?  
YES (1) NO (2)

b. Telling a child to stop changing the channel or you will hit him/her is \_\_\_\_\_ for you.

HARD!            hard            easy            EASY!  
1                    2                    3                    4

What would happen if you didn't say anything to Mark/Tina and just stared out the window because you couldn't watch your show?

1. Would Mark/Tina like you? OR 2. Would Mark/Tina NOT like you?
1. Would Mark/Tina NOT change the channel back? OR 2. Would Mark/Tina change the channel back?

Have you ever said nothing to a child and just stared out the window because you couldn't watch your show? YES (1) NO (2)

Not saying anything and staring out the window because you couldn't watch your show is \_\_\_\_\_ for you.

HARD!            hard            easy            EASY!  
1                    2                    3                    4

Which of these two things would you like most to have happen in this situation?:  
The child like you. OR  
The child to change the channel back.

III) Playground Situation: You go to the playground one day and see some children you know playing soccer. You would really like to play with them, so you go over and ask one of the children, whose name is Paul/Amy, if you can play. Paul/Amy says no.

What would happen if you said "I'll let you play with my soccer ball tomorrow if you let me play now"?

1. Would Paul/Amy let you play? OR 2. Would Paul/Amy NOT let you play?

1. Would Paul/Amy NOT want to be your friend? OR 2. Would Paul/Amy want to be your friend?

Have you ever said to a child "I'll let you play with my toy tomorrow if you let me play now"? YES (1) NO (2)

Saying to a child that you will let him/her use your ball if he/she lets you play is \_\_\_\_\_ for you.

HARD!            hard            easy            EASY!  
1                    2                    3                    4

What would happen if you said to Paul/Amy "You'd better let me play!"?

1. Would Paul Amy like you? OR 2. Would Paul/Amy NOT like you?

1. Would Paul/Amy NOT let you play? OR 2. Would Paul/Amy let you play?

Have you ever said to a child "You'd better let me play!"?  
YES (1) NO (2)

b. Telling a child that he/she had better let you play is \_\_\_\_\_ for you.

HARD!            hard            easy            EASY!  
1                    2                    3                    4

What would happen if you didn't say anything and just walked away from Paul/Amy?

1. Would Paul/Amy let you play? OR 2. Would Paul/Amy NOT let you play?

1. Would Paul/Amy NOT want to be your friend? OR 2. Would Paul/Amy want to be your friend?

a. Have you ever said nothing and walked away from other children when they won't

let you play? YES (1) NO (2)

b. Not saying anything and walking away from other children when they won't  
Let you play is \_\_\_\_\_ for you.

HARD!            hard            easy            EASY!  
1                    2                    3                    4

Which of these two things would you like most to have happen in this situation?:  
To play with the other children. OR  
To have the other children like you.

IV) Photo Situation: You are at school and you see some children you know looking at some photographs. You would like to look at them too. You ask a child named Bruce/Betsy if you can look at the pictures and he/she says no.

What would happen if you said to Bruce/Betsy "It's not fair if you don't let me see the pictures.?"

1. Would Tom/Mary like you? OR 2. Would Tom/Mary NOT like you?

1. Would Tom/Mary NOT let you see the photos? OR 2. Would Tom/Mary let you see the photos?

Have you ever said "It's not fair" when other children won't let you do something with them? YES (1) NO (2)

Saying that it's not fair that you can't see the pictures is \_\_\_\_\_ for you.

HARD!	hard	easy	EASY!
1	2	3	4

What would happen if you said "If you don't let me see them I am going to hit you.?"

1. Would Tom/Mary let you see the photos? OR 2. Would Tom/Mary NOT let you see the photos?

1. Would Tom/Mary NOT want to be your friend? OR 2. Would Tom/Mary want to be your friend?

Have you ever said "If you don't let me, I'm going to hit you"?

YES (1) NO (2)

Telling a child that you will hit him/her if he/she doesn't let you see his/her photos is \_\_\_\_\_ for you.

HARD!	hard	easy	EASY!
1	2	3	4

What would happen if you said "I didn't want to see those pictures anyway," and left?

1. Would Tom/Mary like you? OR 2. Would Tom/Mary NOT like you?

1. Would Tom/Mary let you see the pictures? OR 2. Would Tom/Mary NOT let you see the pictures?

a. Have you ever said "I didn't want to see them anyway" and left?

YES (1) NO (2)

b. Saying you didn't want to see the pictures and walking away is \_\_\_\_\_ for you.

HARD!	hard	easy	EASY!
1	2	3	4

Which of these two things would you like most to have happen in this situation?:

To have the other children like you. OR

To get to look at the pictures.

### **Appendix 2.9-** Information on Things That Happen to Me (TTHTM)

The TTHTM (Dodge, Bates, & Pettit, 1990; Dodge, Pettit, Bates & Valente, 1995) was used to measure response evaluation and contains 4 verbally presented social situations that are accompanied by a cartoon picture. Two of the vignettes involve situations of peer conflict and two involve situations of peer provocation. The child is asked to imagine that they are the target child in the story. For each story the interviewer offers the child an assertive, aggressive, or withdrawal (passive) solution. The child evaluates these solutions in terms of their effectiveness in both achieving a positive instrumental outcome (scored 0=not effective and 1= effective) and a positive interpersonal outcome (scored 0=not effective and 1= effective). The responses to these questions across all four vignettes were computed to yield separate mean scores for the positive consequences of aggression, assertiveness and passive solutions with potential scores ranging from 0-2 for each response. Higher scores indicate a more positive evaluation of that response. Mean scores for the positive evaluation of each response in achieving either instrumental or interpersonal outcomes was also obtained.

The instrument also asks children to indicate on a four point scale how easy they would find it to enact each response (self-efficacy). Responses ranged from 0 (very hard) to 4 (very easy). The responses were averaged across the vignettes separately for the assertive, aggressive and passive responses and mean scores generated with higher scores indicating higher self-efficacy to enact that response. The instrument also asks children to express their preference for either an instrumental or interpersonal goal. The number of instrumental and interpersonal goals for each child across the four vignettes was recorded.

## Appendix 2.10 –NHS Ethical approval letter

# **WoSRES**

**West of Scotland Research Ethics Service**

### **West of Scotland REC 5**

Western Infirmary  
Ground floor, Tennent Institute  
38 Church Street  
GLASGOW  
G11 6NT

Telephone: 0141 211 2102  
Facsimile: 0141 211 1847

19 October 2010

Mr Michael Coughlin  
Trainee Clinical Psychologist  
Psychological Medicine  
1st floor, Admin Building  
Gartnavel Royal Hospital  
1055 Great Western Road  
GLASGOW  
G12 0XH

Dear Mr Coughlin

**Study Title:** **A comparison of social information processing in children with and without Reactive Attachment Disorder (RAD) and their impact on parent-reported behavioural difficulties.**

**REC reference number:** **10/S1001/54**

Thank you for your recent letter, which was received on 7<sup>th</sup> October 2010, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information was considered in correspondence by a sub-committee of the REC. A list of the sub-committee members is attached.

### **Confirmation of ethical opinion**

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

### **Ethical review of research sites**

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

### **Conditions of the favourable opinion**

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

For NHS research sites only, management permission for research (“R&D approval”) should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

*Sponsors are not required to notify the Committee of approvals from host organisations.*

### **Other conditions specified by the REC**

It is noted that the initial boxes and the statement "Please initial the box for each statement" have been removed from the revised Parent's Informed Consent Form. These should be reinstated.

**It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).**

**You should notify the REC in writing once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers.**

### **Statement of compliance**

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

### **After ethical review**

Now that you have completed the application process please visit the National Research Ethics Service website > After Review

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document “*After ethical review – guidance for researchers*” gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments



- Adding new sites and investigators
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email [referencegroup@nres.npsa.nhs.uk](mailto:referencegroup@nres.npsa.nhs.uk).

**10/S1001/54**

**Please quote this number on all correspondence**

Yours sincerely

**Dr Gregory Ofili**  
**Chair**

Email: [sharon.macgregor@ggc.scot.nhs.uk](mailto:sharon.macgregor@ggc.scot.nhs.uk)

## Appendix 2.11- Participant Information sheets



### INFORMATION SHEET FOR PARTICIPANTS

#### Research Study Title

**Social Information processing in children with and without difficulties in social relationships**

#### **Chief investigator:**

Mr. Michael Coughlin, Trainee Clinical Psychologist

#### **Research Supervisors:**

Dr. Alison Jackson and Dr. Helen Minnis

#### **Background and Purpose**

I am training to be a Clinical Psychologist and I attend the University of Glasgow for teaching, in addition to working in the NHS. As part of my training, I need to conduct a Research Project that will help clinicians better understand people's problems and how best to help them.

There has been very little research in understanding how children who have difficulties in social relationships perceive and evaluate social situations with their peers. This research is interested in how children judge social situations that are uncertain, which aspects of ambiguous social situations they are most likely to pay attention to and hypothetically asking children how they would act in different social situations. The study will ask whether the way children think about social situations is associated with any behavioural difficulties that may have. The study will compare two groups of children, some of whom will have difficulties in social relationships as previously judged by a clinician, while some children will not have any previously identified difficulties with social relationships. **(For school referrals-“Your child belongs in the latter category”)**.

#### **Why I have been invited to take part?**

You have been invited to take part for one of two reasons. Firstly, as a parent of a child who has been identified as having difficulties in social relationships, you and your child have been invited to participate in the study as we are interested in how children with these difficulties think about and evaluate social situations. Secondly, you may also have been invited to take part through your child's school if your child does not have difficulties in social relationships as the study is interested in comparing differences in thinking styles between children with and without difficulties in social relationships.

### **What happens if I take part?**

If you agree to participate in the research project you will be asked to complete a number of questionnaires in relation to behavioural difficulties your child may or may not display. Your child will also be asked to complete some tasks assessing how they perceive and evaluate social situations. This will take the form of presenting children with imaginary stories or DVD vignettes with child actors and asking your child questions about what they have seen or heard. Children will also participate in brief tasks assessing their overall level of thinking and solving puzzles with and without words. You have the option of attending either Caledonia House at Yorkhill Hospital or your child's local mental health service base for these procedures which should take less than two hours to complete (**or for school referrals "you have the choice of accompanying your child to their school or permitting the researcher to meet with your child at the school without you being present"**).

### **Disadvantages or risks in taking part in the research study**

There are no known risks or side-effects to participating in the research project. The questionnaires and tasks that children will complete have been used in research studies for many years with no difficulties reported by children or parents.

### **Hospital Research Ethics Committee Approval**

This research study has been approved by the West of Scotland Research Ethics Committee

### **What will happen to the results of the study?**

The information from the data collected will be used to compare differences in social thinking between children with and without difficulties in social relationships. In reporting the results of the study the data collected maybe used and reported in an article for publication. However all personal identifying information, for example name, address and school, will be removed in order to maintain anonymity. This research project is interested in the average response of children rather than focussing on individual results.

### **Confidentiality**

All the information supplied for the research project will be treated in the strictest of confidence. However, any information revealed to the researcher suggesting that harm has or may come to the child, the parent or someone else, may require the disclosure of this information to a third party. Your child's results in this research will be provided to their mental health clinician (**for CAMHS, LAAC, and Therapeutic Centre referrals only**) as this information may be useful to them.

In the reporting of the overall results of this study all personal identifying information will be removed or edited in order to maintain anonymity. Any information about you, which leaves the hospital, will contain no information as to your identity so that you can not be recognised from it.

### **Voluntary Participation:**

It is up to you to decide as to whether you are going to take part or not. If you do take part, we will give you an information leaflet that we will read and discuss with you. If

you agree to take part you will be asked to sign a consent form. However, even if you do decide to take part, you are free to withdraw at any time and without giving a reason. This will not affect the standard of care you will receive from the NHS or other services.

**If I decide not to take part?**

If you decide not to take part you and your family are still entitled to a full service at the NHS or other service for current and future health needs of you and your family.

**Further Information**

This research is being conducted to evaluate our practice and better inform professionals working young children who have difficulties in social relationships. We very much hope that you will agree to participate in the research.

If you require any assistance or have any questions about the research study, please feel free to contact

Mr. Michael Coughlin  
Chief Investigator  
Department of Psychological Medicine  
Academic Centre  
Gartnavel Royal Hospital  
1055 Great Western Road  
Glasgow, G12 0XH

Phone: 0141 211 0607

Or one of the study's supervisors

Dr. Alison Jackson  
University Teacher  
Dept. Psychological Medicine  
Academic Centre  
Gartnavel Royal Hospital  
1055 Great Western Road  
Glasgow, G12 0XH

Phone: 0141 211 0607

Dr. Helen Minnis  
Senior Lecturer  
Child and Adolescent Psychiatry  
University of Glasgow (Psychological Medicine)  
Caledonia House  
Royal Hospital for Sick Children  
Yorkhill  
Glasgow  
G3 8SJ

Phone: 0141 201 9239

**Thank you very much for considering to take part in this research study**

Appendix 2.12- Participant Consent forms.



## PARENT'S INFORMED CONSENT FORM

Title of Study:

**Social information processing in children with and without difficulties in social relationships**

**Parents Name:**

**Child's Name:**

**Name of Researcher and Contact Details:** Mr. Michael Coughlin

Department of Psychological Medicine  
Academic Centre  
Gartnavel Royal Hospital  
1055 Great Western Road  
Glasgow, G12 0XH  
Phone: 0141 211 0607

*Please initial the box for each statement*

I would prefer to accompany my child to the school for participation in the study [  ]

**OR**

I agree to completing questionnaires by post and permitting the researcher to meet with my child at school [  ] **FOR SCHOOL REFERRALS ONLY**

I confirm that I have read and understood the Information Leaflet for the above research study and received an explanation of the nature, purpose, duration, and foreseeable effects and risks of the study and what my child's involvement will be. [  ]

I have had time to consider whether I want myself and my child to take part in this study. My questions have been answered satisfactorily and I have received a copy of the Information Leaflet for Participants. [  ]

I confirm that my child has also received child-friendly versions of the Information leaflet and Informed Consent/Assent Form and that he/she is willing to participate in the study. [ ]

I understand that my permission for me and my child to take part is voluntary, (that I have a choice as to whether he/she participates) and that I am free to withdraw at any time without my family's current or future health needs being affected. [ ]

I agree for my child to take part in the above study. [ ]

I agree to my child's clinician (**for therapeutic centre, LAAC and CAMHS referrals**), GP (**for adoption UK referrals**) or the school (**for school referrals**) being given a copy of my child's results on the research tasks [ ]

.....  
Name of Parent (in block letters)      Date      Signature

.....  
Name of Researcher      Date      Signature

# **WoSRES**

## **West of Scotland Research Ethics Service**

### **West of Scotland REC 5**

Ground Floor – The Tennent Institute  
Western Infirmary  
38 Church Street  
Glasgow G11 6NT  
[www.nhsqgc.org.uk](http://www.nhsqgc.org.uk)

Mr Michael Coughlin  
Trainee Clinical Psychologist  
Psychological Medicine  
1st floor, Admin Building  
Gartnavel Royal Hospital  
1055 Great Western Road  
Glasgow G12 0XH

Date 21<sup>st</sup> February 2011  
Your Ref  
Our Ref  
Direct line 0141 211 2123  
Fax 0141 211 1847  
E-mail Liz.Jamieson@ggc.scot.nhs.uk

Dear Mr Coughlin

**Study title:** A comparison of social information processing in children with and without Reactive Attachment Disorder (RAD) and their impact on parent-reported behavioural difficulties.  
**REC reference:** 10/S1001/54  
**Amendment number:** AM01  
**Amendment date:** 5<sup>th</sup> February 2011

The above amendment was reviewed by the Sub-Committee in correspondence.

### **Ethical opinion**

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

### **Approved documents**

The documents reviewed and approved at the meeting were:

Document	Version	Date	
Participant Consent Form: Parents	Version 2	05 February 2011	
Participant Information Sheet: School Referrals	Version 2	05 February 2011	
Protocol	Version 2	05 February 2011	
Notice of Substantial Amendment (non-CTIMPs)	AM01		

### **Membership of the Committee**

The members of the Committee who took part in the review are listed on the attached sheet.

## **R&D approval**

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

## **Statement of compliance**

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

**10/S1001/54:**

**Please quote this number on all correspondence**

Yours sincerely

**Mrs Liz Jamieson**  
**Committee Co-ordinator**

Enclosures: List of names and professions of members who took part in the review

Copy to: Dr. Michael Barber, NHS Greater Glasgow & Clyde – R&D